

### ***Laboratories Receiving MAPEP Radiological Air Filters***

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ADEM01	Alabama Department of Environmental Management
AFOH01	AFIOH/SDRR
ANLA01	Argonne National Laboratory/Analytical Chemistry Lab.
ANLB01	Argonne National Laboratory
ANTE01	Paragon Analytics a Division of DataChem Laboratories, Inc.
ARPL01	Analytical Support Operations - Radiochemical Processing Lab
ARSL01	American Radiation Services Inc.
ATLI01	ATL International, Inc.
AY1201	BWXT Y-12, Analytical Chemistry Organization Laboratory
CDHS01	California Department of Health Services
CESL01	Lawrence Livermore National Laboratory - EMRL
CHMH01	222-S Laboratory
CMRC01	Carlsbad Environmental Monitoring and Research Center
CORE02	STL Denver
DEHS01	Department of Environmental Health & Safety
EANR99	The Supreme Council for the Environment and Natural Resources
EMBW01	CH2M Hill, Mound Inc., Mound, Environmental Monitoring
ENES01	Energy Northwest Environmental Services
EPAL01	U. S. EPA Office of Radiation and Indoor Air
ERAD01	Lawrence Livermore National Laboratory ERAD
ERCL01	Public Health Laboratories
ERHD99	Radiation Protection Bureau ERHD NMS
ERLG01	Environmental Radiation Laboratory
ERPD99	Environmental Radiation Protection Division
FDHE01	Florida Dept of Health Environmental Laboratory
FDOH01	Florida Dept. of Health, Mobile Environmental Radiological Lab
FNAL01	Fermi National Accelerator Laboratory (FermiLab)
FSCL01	Lawrence Livermore Laboratory
GENE01	General Engineering Laboratories, LLC
GPCL01	Georgia Power Company Environmental Laboratory
GPLP01	GPL Laboratories, LLLP
GROW01	FGL Environmental
HERR01	Washington Closure Hanford
IAEA99	International Atomic Energy Agency
ISUP01	ISU - Department of Physics/Health Physics/EAL
JAEC99	Radiation Measurements Laboratory
JLNN01	Jefferson Laboratory
KAST99	Environmental Studies Laboratory
LANL01	Los Alamos National Laboratory
LAWR01	LAWRENCE BERKELEY NATIONAL LABORATORY
LAWR02	Lawrence Livermore National Laboratory
LOCK01	ICP Analytical Laboratories Department
LOCK03	RADIATION MEASUREMENTS LABORATORY/AEDL
MART01	USEC, Inc.
MART02	United States Enrichment Corporation
MART03	Radioactive Material Analysis Laboratory

MDPH01	MDPH-Radiation Control Program
NARL01	National Air and Radiation Environmental Laboratory
NESI01	BWXT Services-Nuclear Environmental Laboratory Services
NJDH01	New Jersey Dept. of Health & Senior Services, PHEL, ECLS
NTSI01	Nuclear Technology Services, Inc.
ODHL01	Ohio Department of Health Laboratory
ORIS01	ORISE/ESSAP
OTLI01	Outreach Technologies, Inc.
PBRF01	NASA Plum Brook Reactor Facility Lab
QUAN01	STL St. Louis
QUAN03	SEVERN TRENT LABORATORIES RICHLAND
RECC01	GEL Laboratories of Ohio, LLC
RMCL99	Royal Scientific Society - Radiation Measurements Lab
RPSC01	Radiation Protection Service
RSAL01	RSA Laboratories, Inc.
RSIR99	Instituto de Radioprotecao e Dosimetria
SCAL01	Sanford Cohen and Associates, Inc.
SECR01	SECRA 3005 Count Lab - ORNL
SEML01	SRS Environmental Monitoring Laboratory
SLDL01	Scientific Laboratory Division
SOUT01	Southwest Research Institute
SRPD01	Sandia National Laboratories, Radiation Protection Sample Diagnostics
SSFL01	Santa Susana Field Laboratory
TDHL01	Texas Department of State Health Services Laboratory
TELE01	TELEDYNE BROWN ENGINEERING - ENVIRONMENTAL SERVICES
TELE02	Environmental, Inc., Midwest Lab
TMAE01	Eberline Services, Inc.
TMAO01	EBERLINE SERVICES OAK RIDGE LABORATORY
TMAR01	Eberline Services
TNUT01	FUSRAP
UQNP99	University of Qatar - Nuclear Physics Lab
UTSG01	UniTech Services Group
WEST03	Waste Sampling and Characterization Facility
WEST04	PACE ANALYTICAL SERVICES WALTZ MILL SITE
WIPH01	WI, DPH, Radiation Protection Section
WIPP01	WIPP Laboratories
WSHL01	Wisconsin State Laboratory of Hygiene
WVDP01	WVDP Environmental Laboratory
WVPL01	WVDP Radiation Protection Lab
YAEC01	Framatome ANP Environmental Laboratory
YPGA01	US Army Yuma Proving Ground / Material Analysis Lab

## *Labs Not Reporting RdF*

### LAB\_CODE LAB\_NAME

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CDHS01	California Department of Health Services
EANR99	The Supreme Council for the Environment and Natural Resource
EMBW01	CH2M Hill, Mound Inc., Mound, Environmental Monitoring
ENES01	Energy Northwest Environmental Services
ERAD01	Lawrence Livermore National Laboratory ERAD
GPCL01	Georgia Power Company Environmental Laboratory
GROW01	FGL Environmental
IAEA99	International Atomic Energy Agency
KAST99	Environmental Studies Laboratory
LANL01	Los Alamos National Laboratory
LAWR02	Lawrence Livermore National Laboratory
RSIR99	Instituto de Radioprotecao e Dosimetria
SECR01	SECRA 3005 Count Lab - ORNL
SSFL01	Santa Susana Field Laboratory
TNUT01	FUSRAP
UQNP99	University of Qatar - Nuclear Physics Lab
UTSG01	UniTech Services Group

# Mixed Analyte Performance Evaluation Program

## Statistical Summary

Sample ID: MAPEP-05-RdF14

Radiological Filter Standard

Analyte	T(1)	A(2)	Grand Mean	Std. Dev.	Reference Value	Analyte Text	Acceptance Limits	Units
Uranium-Total	3	2			23.0			
Uranium-235	2	2			0.165			
Uranium-238	2	2			22.8			
Americium-241	48	42	0.15	0.02	0.158		0.11 - 0.21	Bq/sample
Cesium-134	65	57	3.50	0.41	3.85		2.69 - 5.01	Bq/sample
Cesium-137	67	61	3.09	0.31	3.23		2.26 - 4.20	Bq/sample
Cobalt-57	66	64	6.07	0.58	6.20		4.34 - 8.06	Bq/sample
Cobalt-60	67	66	2.80	0.21	2.85		1.99 - 3.70	Bq/sample
Manganese-54	66	66	4.32	0.35	4.37		3.06 - 5.68	Bq/sample
Plutonium-238	41	37	0.10	0.01	0.0969		0.07 - 0.13	Bq/sample
Plutonium-239/240	41	37	0.09	0.01	0.0898		0.06 - 0.12	Bq/sample
Potassium-40	2							
Strontium-90	35	30	2.08	0.22	2.25		1.58 - 2.92	Bq/sample
Uranium-234/233	37	37	0.28	0.02	0.273		0.19 - 0.35	Bq/sample
Uranium-235	3							
Uranium-238	38	38	0.28	0.02	0.283		0.20 - 0.37	Bq/sample
Zinc-65	65	62	4.49	0.51	4.33		3.03 - 5.63	Bq/sample

**Note:** Outliers are excluded from the statistical summary.  
Outliers are defined as laboratory data with a bias greater than 30 percent.  
(1) T = Total Number of Laboratories Reporting Analyte.  
(2) A = Number of Laboratories with 'Acceptable' Performance.

# Mixed Analyte Performance Evaluation Program

## Laboratory Results - Radiological Air Filter

ADEM01

Alabama Department of Environmental Management  
Central Laboratory  
Montgomery AL 36109

Sample ID: MAPEP-05-RdF14

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Americium-241	NR	0.158				0.11 - 0.21			
Cesium-134	2.23	3.85	N		-42.1	2.69 - 5.01	0.11		Bq/sample
Cesium-137	2.21	3.23	N		-31.6	2.26 - 4.20	0.11		Bq/sample
Cobalt-57	6.99	6.20	A		12.7	4.34 - 8.06	0.22		Bq/sample
Cobalt-60	2.29	2.85	A		-19.6	1.99 - 3.70	0.07		Bq/sample
Manganese-54	3.89	4.37	A		-11.0	3.06 - 5.68	0.18		Bq/sample
Plutonium-238	NR	0.0969				0.07 - 0.13			
Plutonium-239/240	NR	0.0898				0.06 - 0.12			
Strontium-90	NR	2.25				1.58 - 2.92			
Uranium-234/233	NR	0.273				0.19 - 0.35			
Uranium-238	NR	0.283				0.20 - 0.37			
Zinc-65	20.6	4.33	N		375.8	3.03 - 5.63	0.21	L	Bq/sample

### Flags:

A = Result acceptable  
W = Result acceptable with warning  
N = Result not acceptable  
L = Uncertainty potentially too low  
H = Uncertainty potentially too high  
Q = Participant should evaluate reported value  
QL = Quantitation Limit  
RW = Report Warning  
NR = Not Reported

Bias <= 20%  
20% < Bias <= 30%  
Bias > 30%

### Flag Text

1 - False Positive  
2 - False Negative  
4 - Sensitivity Evaluation  
5 - Total Metal  
6 - Not Evaluated  
7 - DL > CLP Limit  
9 - Check QL  
10 - Check Isomer  
11 - False Positive Test, Value Not Reported  
14 - Solubility Issue  
15 - Refractory  
16 - Reported zero uncertainty  
17 - NOT DETECTED, reported a statistically zero result.  
18 - Sensitivity evaluation, value not reported.

# Mixed Analyte Performance Evaluation Program

## Laboratory Results - Radiological Air Filter

AFOH01

AFIOH/SDRR

Sample ID: MAPEP-05-RdF14

2350 Gillingham Dr

Brooks City-Base TX 78235-5103

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Americium-241	0.50	0.158	N		216.5	0.11 - 0.21	0.06		Bq/sample
Cesium-134	2.84	3.85	W		-26.2	2.69 - 5.01	0.19		Bq/sample
Cesium-137	2.47	3.23	W		-23.5	2.26 - 4.20	0.23		Bq/sample
Cobalt-57	4.60	6.20	W		-25.8	4.34 - 8.06	0.24		Bq/sample
Cobalt-60	2.30	2.85	A		-19.3	1.99 - 3.70	0.16		Bq/sample
Manganese-54	3.55	4.37	A		-18.8	3.06 - 5.68	0.26		Bq/sample
Plutonium-238	0.09	0.0969	A		-7.1	0.07 - 0.13	0.02	H	Bq/sample
Plutonium-239/240	0.09	0.0898	A		0.2	0.06 - 0.12	0.02	H	Bq/sample
Strontium-90	1.02	2.25	N		-54.7	1.58 - 2.92	0.13		Bq/sample
Uranium-234/233	0.288	0.273	A		5.5	0.19 - 0.35	0.035		Bq/sample
Uranium-238	0.289	0.283	A		2.1	0.20 - 0.37	0.035		Bq/sample
Zinc-65	3.59	4.33	A		-17.1	3.03 - 5.63	0.47		Bq/sample

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Bias <= 20%  
20% < Bias <= 30%  
Bias > 30%

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2 - False Negative  
4 - Sensitivity Evaluation  
5 - Total Metal  
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9 - Check QL  
10 - Check Isomer  
11 - False Positive Test, Value Not Reported  
14 - Solubility Issue  
15 - Refractory  
16 - Reported zero uncertainty  
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18 - Sensitivity evaluation, value not reported.

# Mixed Analyte Performance Evaluation Program

## Laboratory Results - Radiological Air Filter

ANLA01

Argonne National Laboratory/Analytical Chemistry Lab.  
9700 S. Cass Avenue  
Argonne IL 60439-4803

Sample ID: MAPEP-05-RdF14

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Americium-241	NR	0.158				0.11 - 0.21			
Cesium-134	3.9	3.85	A		1.3	2.69 - 5.01	0.2		Bq/sample
Cesium-137	3.2	3.23	A		-0.9	2.26 - 4.20	0.2		Bq/sample
Cobalt-57	5.8	6.20	A		-6.5	4.34 - 8.06	0.3		Bq/sample
Cobalt-60	2.8	2.85	A		-1.8	1.99 - 3.70	0.1		Bq/sample
Manganese-54	4.2	4.37	A		-3.9	3.06 - 5.68	0.2		Bq/sample
Plutonium-238	NR	0.0969				0.07 - 0.13			
Plutonium-239/240	NR	0.0898				0.06 - 0.12			
Strontium-90	NR	2.25				1.58 - 2.92			
Uranium-234/233	NR	0.273				0.19 - 0.35			
Uranium-238	NR	0.283				0.20 - 0.37			
Zinc-65	3.9	4.33	A		-9.9	3.03 - 5.63	0.3		Bq/sample

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N = Result not acceptable  
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H = Uncertainty potentially too high  
Q = Participant should evaluate reported value  
QL = Quantitation Limit  
RW = Report Warning  
NR = Not Reported

Bias <= 20%  
20% < Bias <= 30%  
Bias > 30%

### Flag Text

1 - False Positive  
2 - False Negative  
4 - Sensitivity Evaluation  
5 - Total Metal  
6 - Not Evaluated  
7 - DL > CLP Limit  
9 - Check QL  
10 - Check Isomer  
11 - False Positive Test, Value Not Reported  
14 - Solubility Issue  
15 - Refractory  
16 - Reported zero uncertainty  
17 - NOT DETECTED, reported a statistically zero result.  
18 - Sensitivity evaluation, value not reported.

# Mixed Analyte Performance Evaluation Program

## Laboratory Results - Radiological Air Filter

ANLB01

Argonne National Laboratory

Sample ID: MAPEP-05-RdF14

9700 S. Cass Ave

Argonne IL 60439

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Americium-241	0.153	0.158	A		-3.2	0.11 - 0.21	0.012		Bq/sample
Cesium-134	3.56	3.85	A		-7.5	2.69 - 5.01	0.27		Bq/sample
Cesium-137	3.02	3.23	A		-6.5	2.26 - 4.20	0.39		Bq/sample
Cobalt-57	6.40	6.20	A		3.2	4.34 - 8.06	0.19	L	Bq/sample
Cobalt-60	2.96	2.85	A		3.9	1.99 - 3.70	0.34		Bq/sample
Manganese-54	4.08	4.37	A		-6.6	3.06 - 5.68	0.42		Bq/sample
Plutonium-238	0.098	0.0969	A		1.1	0.07 - 0.13	0.008		Bq/sample
Plutonium-239/240	0.090	0.0898	A		0.2	0.06 - 0.12	0.008		Bq/sample
Strontium-90	2.10	2.25	A		-6.7	1.58 - 2.92	0.09		Bq/sample
Uranium-234/233	0.269	0.273	A		-1.5	0.19 - 0.35	0.020		Bq/sample
Uranium-238	0.291	0.283	A		2.8	0.20 - 0.37	0.034		Bq/sample
Zinc-65	3.24	4.33	W		-25.2	3.03 - 5.63	1.33	H	Bq/sample

### Flags:

A = Result acceptable  
W = Result acceptable with warning  
N = Result not acceptable  
L = Uncertainty potentially too low  
H = Uncertainty potentially too high  
Q = Participant should evaluate reported value  
QL = Quantitation Limit  
RW = Report Warning  
NR = Not Reported

Bias <= 20%  
20% < Bias <= 30%  
Bias > 30%

### Flag Text

1 - False Positive  
2 - False Negative  
4 - Sensitivity Evaluation  
5 - Total Metal  
6 - Not Evaluated  
7 - DL > CLP Limit  
9 - Check QL  
10 - Check Isomer  
11 - False Positive Test, Value Not Reported  
14 - Solubility Issue  
15 - Refractory  
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18 - Sensitivity evaluation, value not reported.

# Mixed Analyte Performance Evaluation Program

## Laboratory Results - Radiological Air Filter

ANTE01

Paragon Analytics a Division of DataChem Laboratories,  
225 Commerce Drive  
Fort Collins CO 80524-

Sample ID: MAPEP-05-RdF14

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Americium-241	0.142	0.158	A		-10.1	0.11 - 0.21	0.014		Bq/sample
Cesium-134	3.04	3.85	W		-21.0	2.69 - 5.01	0.19		Bq/sample
Cesium-137	2.72	3.23	A		-15.8	2.26 - 4.20	0.17		Bq/sample
Cobalt-57	5.29	6.20	A		-14.7	4.34 - 8.06	0.32		Bq/sample
Cobalt-60	2.47	2.85	A		-13.3	1.99 - 3.70	0.15		Bq/sample
Manganese-54	3.74	4.37	A		-14.4	3.06 - 5.68	0.23		Bq/sample
Plutonium-238	0.0892	0.0969	A		-7.9	0.07 - 0.13	0.0094		Bq/sample
Plutonium-239/240	0.0837	0.0898	A		-6.8	0.06 - 0.12	0.0089		Bq/sample
Strontium-90	1.94	2.25	A		-13.8	1.58 - 2.92	0.23		Bq/sample
Uranium-234/233	0.270	0.273	A		-1.1	0.19 - 0.35	0.024		Bq/sample
Uranium-238	0.263	0.283	A		-7.1	0.20 - 0.37	0.023		Bq/sample
Zinc-65	3.86	4.33	A		-10.9	3.03 - 5.63	0.26		Bq/sample

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H = Uncertainty potentially too high  
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NR = Not Reported

Bias <= 20%  
20% < Bias <= 30%  
Bias > 30%

### Flag Text

1 - False Positive  
2 - False Negative  
4 - Sensitivity Evaluation  
5 - Total Metal  
6 - Not Evaluated  
7 - DL > CLP Limit  
9 - Check QL  
10 - Check Isomer  
11 - False Positive Test, Value Not Reported  
14 - Solubility Issue  
15 - Refractory  
16 - Reported zero uncertainty  
17 - NOT DETECTED, reported a statistically zero result.  
18 - Sensitivity evaluation, value not reported.

# Mixed Analyte Performance Evaluation Program

## Laboratory Results - Radiological Air Filter

ARPL01

Analytical Support Operations - Radiochemical Processi

Sample ID: MAPEP-05-RdF14

PO Box 999

Richland

WA

99352

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Americium-241	NR	0.158				0.11 - 0.21			
Cesium-134	3.64	3.85	A		-5.5	2.69 - 5.01	0.10	L	Bq/sample
Cesium-137	3.08	3.23	A		-4.6	2.26 - 4.20	0.06	L	Bq/sample
Cobalt-57	6.07	6.20	A		-2.1	4.34 - 8.06	0.10	L	Bq/sample
Cobalt-60	2.88	2.85	A		1.1	1.99 - 3.70	0.06	L	Bq/sample
Manganese-54	4.20	4.37	A		-3.9	3.06 - 5.68	0.10	L	Bq/sample
Plutonium-238	NR	0.0969				0.07 - 0.13			
Plutonium-239/240	NR	0.0898				0.06 - 0.12			
Strontium-90	2.14	2.25	A		-4.9	1.58 - 2.92	0.08		Bq/sample
Uranium-234/233	NR	0.273				0.19 - 0.35			
Uranium-238	NR	0.283				0.20 - 0.37			
Zinc-65	4.48	4.33	A		3.5	3.03 - 5.63	0.10	L	Bq/sample

### Flags:

A = Result acceptable

W = Result acceptable with warning

N = Result not acceptable

L = Uncertainty potentially too low

H = Uncertainty potentially too high

Q = Participant should evaluate reported value

QL = Quantitation Limit

RW = Report Warning

NR = Not Reported

Bias <= 20%

20% < Bias <= 30%

Bias > 30%

### Flag Text

1 - False Positive

2 - False Negative

4 - Sensitivity Evaluation

5 - Total Metal

6 - Not Evaluated

7 - DL > CLP Limit

9 - Check QL

10 - Check Isomer

11 - False Positive Test, Value Not Reported

14 - Solubility Issue

15 - Refractory

16 - Reported zero uncertainty

17 - NOT DETECTED, reported a statistically zero result.

18 - Sensitivity evaluation, value not reported.

# Mixed Analyte Performance Evaluation Program

## Laboratory Results - Radiological Air Filter

ARSL01

American Radiation Services Inc.

Sample ID: MAPEP-05-RdF14

2609 North River Road

Port Allen

LA

70767

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Americium-241	0.122	0.158	W		-22.8	0.11 - 0.21	0.0188		Bq/sample
Cesium-134	2.22	3.85	N		-42.3	2.69 - 5.01	0.108		Bq/sample
Cesium-137	2.27	3.23	W		-29.7	2.26 - 4.20	0.152		Bq/sample
Cobalt-57	5.71	6.20	A		-7.9	4.34 - 8.06	0.275		Bq/sample
Cobalt-60	2.48	2.85	A		-13.0	1.99 - 3.70	0.128		Bq/sample
Manganese-54	3.71	4.37	A		-15.1	3.06 - 5.68	0.225		Bq/sample
Plutonium-238	NR	0.0969				0.07 - 0.13			
Plutonium-239/240	NR	0.0898				0.06 - 0.12			
Strontium-90	NR	2.25				1.58 - 2.92			
Uranium-234/233	NR	0.273				0.19 - 0.35			
Uranium-238	NR	0.283				0.20 - 0.37			
Zinc-65	4.13	4.33	A		-4.6	3.03 - 5.63	0.366		Bq/sample

### Flags:

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 W = Result acceptable with warning  
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 H = Uncertainty potentially too high  
 Q = Participant should evaluate reported value  
 QL = Quantitation Limit  
 RW = Report Warning  
 NR = Not Reported

Bias <= 20%  
 20% < Bias <= 30%  
 Bias > 30%

### Flag Text

1 - False Positive  
 2 - False Negative  
 4 - Sensitivity Evaluation  
 5 - Total Metal  
 6 - Not Evaluated  
 7 - DL > CLP Limit  
 9 - Check QL  
 10 - Check Isomer  
 11 - False Positive Test, Value Not Reported  
 14 - Solubility Issue  
 15 - Refractory  
 16 - Reported zero uncertainty  
 17 - NOT DETECTED, reported a statistically zero result.  
 18 - Sensitivity evaluation, value not reported.

# Mixed Analyte Performance Evaluation Program

## Laboratory Results - Radiological Air Filter

ATL101

ATL International, Inc.

Sample ID: MAPEP-05-RdF14

20010 Century Blvd, Suite 500

Germantown MD 20874

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Americium-241	0.1674	0.158	A		5.9	0.11 - 0.21	0.0264		Bq/sample
Cesium-134	3.5020	3.85	A		-9.0	2.69 - 5.01	0.2000		Bq/sample
Cesium-137	3.6036	3.23	A		11.6	2.26 - 4.20	0.3528		Bq/sample
Cobalt-57	6.9548	6.20	A		12.2	4.34 - 8.06	0.8250		Bq/sample
Cobalt-60	3.0672	2.85	A		7.6	1.99 - 3.70	0.1390		Bq/sample
Manganese-54	4.5748	4.37	A		4.7	3.06 - 5.68	0.4444		Bq/sample
Plutonium-238	0.0889	0.0969	A		-8.3	0.07 - 0.13	0.0127		Bq/sample
Plutonium-239/240	0.0803	0.0898	A		-10.6	0.06 - 0.12	0.0115		Bq/sample
Strontium-90	1.8638	2.25	A		-17.2	1.58 - 2.92	0.1131		Bq/sample
Uranium-234/233	0.2541	0.273	A		-6.9	0.19 - 0.35	0.0382		Bq/sample
Uranium-238	0.2602	0.283	A		-8.1	0.20 - 0.37	0.0391		Bq/sample
Zinc-65	4.8996	4.33	A		13.2	3.03 - 5.63	0.3806		Bq/sample

### Flags:

A = Result acceptable  
W = Result acceptable with warning  
N = Result not acceptable  
L = Uncertainty potentially too low  
H = Uncertainty potentially too high  
Q = Participant should evaluate reported value  
QL = Quantitation Limit  
RW = Report Warning  
NR = Not Reported

Bias <= 20%  
20% < Bias <= 30%  
Bias > 30%

### Flag Text

1 - False Positive  
2 - False Negative  
4 - Sensitivity Evaluation  
5 - Total Metal  
6 - Not Evaluated  
7 - DL > CLP Limit  
9 - Check QL  
10 - Check Isomer  
11 - False Positive Test, Value Not Reported  
14 - Solubility Issue  
15 - Refractory  
16 - Reported zero uncertainty  
17 - NOT DETECTED, reported a statistically zero result.  
18 - Sensitivity evaluation, value not reported.

# Mixed Analyte Performance Evaluation Program

## Laboratory Results - Radiological Air Filter

AY1201

BWXT Y-12, Analytical Chemistry Organization Laborato  
Y12, NSC, Bldg. 9995, Rm 142  
Oak Ridge TN 37831-8189

Sample ID: MAPEP-05-RdF14

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Americium-241	0.152	0.158	A		-3.8	0.11 - 0.21	0.024		Bq/sample
Cesium-134	3.43	3.85	A		-10.9	2.69 - 5.01	0.30		Bq/sample
Cesium-137	2.88	3.23	A		-10.8	2.26 - 4.20	0.32		Bq/sample
Cobalt-57	6.01	6.20	A		-3.1	4.34 - 8.06	0.49		Bq/sample
Cobalt-60	2.91	2.85	A		2.1	1.99 - 3.70	0.25		Bq/sample
Manganese-54	4.45	4.37	A		1.8	3.06 - 5.68	0.57		Bq/sample
Plutonium-238	0.0900	0.0969	A		-7.1	0.07 - 0.13	0.018		Bq/sample
Plutonium-239/240	0.0914	0.0898	A		1.8	0.06 - 0.12	0.016		Bq/sample
Strontium-90	2.03	2.25	A		-9.8	1.58 - 2.92	0.11		Bq/sample
Uranium-234/233	0.257	0.273	A		-5.9	0.19 - 0.35	0.035		Bq/sample
Uranium-238	0.243	0.283	A		-14.1	0.20 - 0.37	0.033		Bq/sample
Zinc-65	4.87	4.33	A		12.5	3.03 - 5.63	0.52		Bq/sample

### Flags:

A = Result acceptable  
W = Result acceptable with warning  
N = Result not acceptable  
L = Uncertainty potentially too low  
H = Uncertainty potentially too high  
Q = Participant should evaluate reported value  
QL = Quantitation Limit  
RW = Report Warning  
NR = Not Reported

Bias <= 20%  
20% < Bias <= 30%  
Bias > 30%

### Flag Text

1 - False Positive  
2 - False Negative  
4 - Sensitivity Evaluation  
5 - Total Metal  
6 - Not Evaluated  
7 - DL > CLP Limit  
9 - Check QL  
10 - Check Isomer  
11 - False Positive Test, Value Not Reported  
14 - Solubility Issue  
15 - Refractory  
16 - Reported zero uncertainty  
17 - NOT DETECTED, reported a statistically zero result.  
18 - Sensitivity evaluation, value not reported.

# Mixed Analyte Performance Evaluation Program

## Laboratory Results - Radiological Air Filter

CESL01

Lawrence Livermore National Laboratory - EMRL

Sample ID: MAPEP-05-RdF14

7000 East Avenue

Livermore

CA

94551

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Americium-241	NR	0.158				0.11 - 0.21			
Cesium-134	3.43	3.85	A		-10.9	2.69 - 5.01	0.172		Bq/sample
Cesium-137	2.94	3.23	A		-9.0	2.26 - 4.20	0.363		Bq/sample
Cobalt-57	6.19	6.20	A		-0.2	4.34 - 8.06	0.367		Bq/sample
Cobalt-60	2.74	2.85	A		-3.9	1.99 - 3.70	0.231		Bq/sample
Manganese-54	4.10	4.37	A		-6.2	3.06 - 5.68	0.427		Bq/sample
Plutonium-238	0.0902	0.0969	A		-6.9	0.07 - 0.13	0.0149		Bq/sample
Plutonium-239/240	0.0835	0.0898	A		-7.0	0.06 - 0.12	0.0138		Bq/sample
Strontium-90	NR	2.25				1.58 - 2.92			
Uranium-234/233	NR	0.273				0.19 - 0.35			
Uranium-238	NR	0.283				0.20 - 0.37			
Zinc-65	4.32	4.33	A		-0.2	3.03 - 5.63	0.790		Bq/sample

### Flags:

A = Result acceptable  
W = Result acceptable with warning  
N = Result not acceptable  
L = Uncertainty potentially too low  
H = Uncertainty potentially too high  
Q = Participant should evaluate reported value  
QL = Quantitation Limit  
RW = Report Warning  
NR = Not Reported

Bias <= 20%  
20% < Bias <= 30%  
Bias > 30%

### Flag Text

1 - False Positive  
2 - False Negative  
4 - Sensitivity Evaluation  
5 - Total Metal  
6 - Not Evaluated  
7 - DL > CLP Limit  
9 - Check QL  
10 - Check Isomer  
11 - False Positive Test, Value Not Reported  
14 - Solubility Issue  
15 - Refractory  
16 - Reported zero uncertainty  
17 - NOT DETECTED, reported a statistically zero result.  
18 - Sensitivity evaluation, value not reported.

# Mixed Analyte Performance Evaluation Program

## Laboratory Results - Radiological Air Filter

CHMH01

222-S Laboratory  
Hanford MSIN T6-10  
Richland

WA 99352

Sample ID: MAPEP-05-RdF14

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Americium-241	.253	0.158	N		60.1	0.11 - 0.21	.009		Bq/sample
Cesium-134	3.09	3.85	A		-19.7	2.69 - 5.01	.2		Bq/sample
Cesium-137	2.14	3.23	N		-33.7	2.26 - 4.20	.27		Bq/sample
Cobalt-57	5.68	6.20	A		-8.4	4.34 - 8.06	.2		Bq/sample
Cobalt-60	2.69	2.85	A		-5.6	1.99 - 3.70	.21		Bq/sample
Manganese-54	3.95	4.37	A		-9.6	3.06 - 5.68	.31		Bq/sample
Plutonium-238	.149	0.0969	N		53.8	0.07 - 0.13	.006		Bq/sample
Plutonium-239/240	.403	0.0898	N		348.8	0.06 - 0.12	.011	L	Bq/sample
Strontium-90	2.21	2.25	A		-1.8	1.58 - 2.92	.037	L	Bq/sample
Uranium-234/233	.289	0.273	A		5.9	0.19 - 0.35	.016		Bq/sample
Uranium-238	.283	0.283	A		0.0	0.20 - 0.37	.015		Bq/sample
Zinc-65	3.91	4.33	A		-9.7	3.03 - 5.63	.56		Bq/sample

### Flags:

A = Result acceptable  
W = Result acceptable with warning  
N = Result not acceptable  
L = Uncertainty potentially too low  
H = Uncertainty potentially too high  
Q = Participant should evaluate reported value  
QL = Quantitation Limit  
RW = Report Warning  
NR = Not Reported

Bias <= 20%  
20% < Bias <= 30%  
Bias > 30%

### Flag Text

1 - False Positive  
2 - False Negative  
4 - Sensitivity Evaluation  
5 - Total Metal  
6 - Not Evaluated  
7 - DL > CLP Limit  
9 - Check QL  
10 - Check Isomer  
11 - False Positive Test, Value Not Reported  
14 - Solubility Issue  
15 - Refractory  
16 - Reported zero uncertainty  
17 - NOT DETECTED, reported a statistically zero result.  
18 - Sensitivity evaluation, value not reported.

# Mixed Analyte Performance Evaluation Program

## Laboratory Results - Radiological Air Filter

CMRC01

Carlsbad Environmental Monitoring and Research Center  
1400 University Dr.

Sample ID: MAPEP-05-RdF14

Carlsbad NM 88220

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Americium-241	.1538	0.158	A		-2.7	0.11 - 0.21	.0022	L	Bq/sample
Cesium-134	NR	3.85				2.69 - 5.01			
Cesium-137	NR	3.23				2.26 - 4.20			
Cobalt-57	NR	6.20				4.34 - 8.06			
Cobalt-60	NR	2.85				1.99 - 3.70			
Manganese-54	NR	4.37				3.06 - 5.68			
Plutonium-238	.0978	0.0969	A		0.9	0.07 - 0.13	.0013	L	Bq/sample
Plutonium-239/240	.0873	0.0898	A		-2.8	0.06 - 0.12	.0012	L	Bq/sample
Strontium-90	1.625	2.25	W		-27.8	1.58 - 2.92	.0448	L	Bq/sample
Uranium-234/233	.2776	0.273	A		1.7	0.19 - 0.35	.0061	L	Bq/sample
Uranium-238	.2908	0.283	A		2.8	0.20 - 0.37	.0063	L	Bq/sample
Zinc-65	NR	4.33				3.03 - 5.63			

### Flags:

A = Result acceptable  
W = Result acceptable with warning  
N = Result not acceptable  
L = Uncertainty potentially too low  
H = Uncertainty potentially too high  
Q = Participant should evaluate reported value  
QL = Quantitation Limit  
RW = Report Warning  
NR = Not Reported

Bias <= 20%  
20% < Bias <= 30%  
Bias > 30%

### Flag Text

1 - False Positive  
2 - False Negative  
4 - Sensitivity Evaluation  
5 - Total Metal  
6 - Not Evaluated  
7 - DL > CLP Limit  
9 - Check QL  
10 - Check Isomer  
11 - False Positive Test, Value Not Reported  
14 - Solubility Issue  
15 - Refractory  
16 - Reported zero uncertainty  
17 - NOT DETECTED, reported a statistically zero result.  
18 - Sensitivity evaluation, value not reported.

# Mixed Analyte Performance Evaluation Program

## Laboratory Results - Radiological Air Filter

CORE02

STL Denver  
4955 Yarrow St  
Arvada

CO 80002

Sample ID: MAPEP-05-RdF14

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Americium-241	0.145	0.158	A		-8.2	0.11 - 0.21	0.008		Bq/sample
Cesium-134	3.758	3.85	A		-2.4	2.69 - 5.01	0.139		Bq/sample
Cesium-137	3.575	3.23	A		10.7	2.26 - 4.20	0.114		Bq/sample
Cobalt-57	6.733	6.20	A		8.6	4.34 - 8.06	0.201	L	Bq/sample
Cobalt-60	3.070	2.85	A		7.7	1.99 - 3.70	0.107		Bq/sample
Manganese-54	4.633	4.37	A		6.0	3.06 - 5.68	0.131	L	Bq/sample
Plutonium-238	0.088	0.0969	A		-9.2	0.07 - 0.13	0.006		Bq/sample
Plutonium-239/240	0.088	0.0898	A		-2.0	0.06 - 0.12	0.006		Bq/sample
Strontium-90	1.869	2.25	A		-16.9	1.58 - 2.92	0.029	L	Bq/sample
Uranium-234/233	0.281	0.273	A		2.9	0.19 - 0.35	0.014		Bq/sample
Uranium-235	0.012						0.002		Bq/sample
Uranium-238	0.282	0.283	A		-0.4	0.20 - 0.37	0.014		Bq/sample
Zinc-65	5.442	4.33	W		25.7	3.03 - 5.63	0.198		Bq/sample

### Flags:

A = Result acceptable  
W = Result acceptable with warning  
N = Result not acceptable  
L = Uncertainty potentially too low  
H = Uncertainty potentially too high  
Q = Participant should evaluate reported value  
QL = Quantitation Limit  
RW = Report Warning  
NR = Not Reported

Bias <= 20%  
20% < Bias <= 30%  
Bias > 30%

### Flag Text

1 - False Positive  
2 - False Negative  
4 - Sensitivity Evaluation  
5 - Total Metal  
6 - Not Evaluated  
7 - DL > CLP Limit  
9 - Check QL  
10 - Check Isomer  
11 - False Positive Test, Value Not Reported  
14 - Solubility Issue  
15 - Refractory  
16 - Reported zero uncertainty  
17 - NOT DETECTED, reported a statistically zero result.  
18 - Sensitivity evaluation, value not reported.

# Mixed Analyte Performance Evaluation Program

## Laboratory Results - Radiological Air Filter

DEHS01

Department of Environmental Health & Safety  
North Carolina State Univ.  
Raleigh NC 27695-8007

Sample ID: MAPEP-05-RdF14

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Americium-241	NR	0.158				0.11 - 0.21			
Cesium-134	1.964	3.85	N		-49.0	2.69 - 5.01	0.121		Bq/sample
Cesium-137	2.109	3.23	N		-34.7	2.26 - 4.20	0.121		Bq/sample
Cobalt-57	5.930	6.20	A		-4.4	4.34 - 8.06	0.268		Bq/sample
Cobalt-60	2.817	2.85	A		-1.2	1.99 - 3.70	0.155		Bq/sample
Manganese-54	4.543	4.37	A		4.0	3.06 - 5.68	0.214		Bq/sample
Plutonium-238	NR	0.0969				0.07 - 0.13			
Plutonium-239/240	NR	0.0898				0.06 - 0.12			
Strontium-90	NR	2.25				1.58 - 2.92			
Uranium-234/233	NR	0.273				0.19 - 0.35			
Uranium-238	NR	0.283				0.20 - 0.37			
Zinc-65	5.063	4.33	A		16.9	3.03 - 5.63	0.324		Bq/sample

### Flags:

A = Result acceptable  
W = Result acceptable with warning  
N = Result not acceptable  
L = Uncertainty potentially too low  
H = Uncertainty potentially too high  
Q = Participant should evaluate reported value  
QL = Quantitation Limit  
RW = Report Warning  
NR = Not Reported

Bias <= 20%  
20% < Bias <= 30%  
Bias > 30%

### Flag Text

1 - False Positive  
2 - False Negative  
4 - Sensitivity Evaluation  
5 - Total Metal  
6 - Not Evaluated  
7 - DL > CLP Limit  
9 - Check QL  
10 - Check Isomer  
11 - False Positive Test, Value Not Reported  
14 - Solubility Issue  
15 - Refractory  
16 - Reported zero uncertainty  
17 - NOT DETECTED, reported a statistically zero result.  
18 - Sensitivity evaluation, value not reported.

# Mixed Analyte Performance Evaluation Program

## Laboratory Results - Radiological Air Filter

EPAL01

U. S. EPA Office of Radiation and Indoor Air  
944 E. Harmon Ave.  
Las Vegas NV 89119-6721

Sample ID: MAPEP-05-RdF14

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Americium-241	NR	0.158				0.11 - 0.21			
Cesium-134	3.07	3.85	W		-20.3	2.69 - 5.01	0.20		Bq/sample
Cesium-137	2.88	3.23	A		-10.8	2.26 - 4.20	0.20		Bq/sample
Cobalt-57	6.05	6.20	A		-2.4	4.34 - 8.06	0.32		Bq/sample
Cobalt-60	2.92	2.85	A		2.5	1.99 - 3.70	0.19		Bq/sample
Manganese-54	4.37	4.37	A		0.0	3.06 - 5.68	0.27		Bq/sample
Plutonium-238	0.0974	0.0969	A		0.5	0.07 - 0.13	0.0083		Bq/sample
Plutonium-239/240	0.0846	0.0898	A		-5.8	0.06 - 0.12	0.0073		Bq/sample
Strontium-90	NR	2.25				1.58 - 2.92			
Uranium-234/233	NR	0.273				0.19 - 0.35			
Uranium-238	NR	0.283				0.20 - 0.37			
Zinc-65	4.50	4.33	A		3.9	3.03 - 5.63	0.35		Bq/sample

### Flags:

A = Result acceptable  
W = Result acceptable with warning  
N = Result not acceptable  
L = Uncertainty potentially too low  
H = Uncertainty potentially too high  
Q = Participant should evaluate reported value  
QL = Quantitation Limit  
RW = Report Warning  
NR = Not Reported

Bias <= 20%  
20% < Bias <= 30%  
Bias > 30%

### Flag Text

1 - False Positive  
2 - False Negative  
4 - Sensitivity Evaluation  
5 - Total Metal  
6 - Not Evaluated  
7 - DL > CLP Limit  
9 - Check QL  
10 - Check Isomer  
11 - False Positive Test, Value Not Reported  
14 - Solubility Issue  
15 - Refractory  
16 - Reported zero uncertainty  
17 - NOT DETECTED, reported a statistically zero result.  
18 - Sensitivity evaluation, value not reported.

# Mixed Analyte Performance Evaluation Program

## Laboratory Results - Radiological Air Filter

ERCL01

Public Health Laboratories

Sample ID: MAPEP-05-RdF14

1610 N.E. 150 th Srteet

Shoreline

WA

98155-9701

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Americium-241	0.127	0.158	A		-19.6	0.11 - 0.21	0.008		Bq/sample
Cesium-134	3.5	3.85	A		-9.1	2.69 - 5.01	0.2		Bq/sample
Cesium-137	3.0	3.23	A		-7.1	2.26 - 4.20	0.2		Bq/sample
Cobalt-57	5.4	6.20	A		-12.9	4.34 - 8.06	0.3		Bq/sample
Cobalt-60	2.7	2.85	A		-5.3	1.99 - 3.70	0.1		Bq/sample
Manganese-54	4.3	4.37	A		-1.6	3.06 - 5.68	0.5		Bq/sample
Plutonium-238	0.092	0.0969	A		-5.1	0.07 - 0.13	0.008		Bq/sample
Plutonium-239/240	0.097	0.0898	A		8.0	0.06 - 0.12	0.008		Bq/sample
Strontium-90	2.27	2.25	A		0.9	1.58 - 2.92	0.10		Bq/sample
Uranium-234/233	0.27	0.273	A		-1.1	0.19 - 0.35	0.01		Bq/sample
Uranium-238	0.30	0.283	A		6.0	0.20 - 0.37	0.01		Bq/sample
Zinc-65	NR	4.33				3.03 - 5.63			

### Flags:

A = Result acceptable  
 W = Result acceptable with warning  
 N = Result not acceptable  
 L = Uncertainty potentially too low  
 H = Uncertainty potentially too high  
 Q = Participant should evaluate reported value  
 QL = Quantitation Limit  
 RW = Report Warning  
 NR = Not Reported

Bias <= 20%  
 20% < Bias <= 30%  
 Bias > 30%

### Flag Text

1 - False Positive  
 2 - False Negative  
 4 - Sensitivity Evaluation  
 5 - Total Metal  
 6 - Not Evaluated  
 7 - DL > CLP Limit  
 9 - Check QL  
 10 - Check Isomer  
 11 - False Positive Test, Value Not Reported  
 14 - Solubility Issue  
 15 - Refractory  
 16 - Reported zero uncertainty  
 17 - NOT DETECTED, reported a statistically zero result.  
 18 - Sensitivity evaluation, value not reported.

# Mixed Analyte Performance Evaluation Program

## Laboratory Results - Radiological Air Filter

ERHD99

Radiation Protection Bureau ERHD NMS

Sample ID: MAPEP-05-RdF14

775 Brookfield Road AL6302D1

Ottawa Ontario K1A 1C1

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Americium-241	.15	0.158	A		-5.1	0.11 - 0.21	.01		Bq/sample
Cesium-134	3.16	3.85	A		-17.9	2.69 - 5.01	0.08	L	Bq/sample
Cesium-137	3.25	3.23	A		0.6	2.26 - 4.20	.12		Bq/sample
Cobalt-57	6.81	6.20	A		9.8	4.34 - 8.06	0.24		Bq/sample
Cobalt-60	2.9	2.85	A		1.8	1.99 - 3.70	.1		Bq/sample
Manganese-54	4.76	4.37	A		8.9	3.06 - 5.68	0.15		Bq/sample
Plutonium-238	NR	0.0969				0.07 - 0.13			
Plutonium-239/240	NR	0.0898				0.06 - 0.12			
Strontium-90	NR	2.25				1.58 - 2.92			
Uranium-234/233	NR	0.273				0.19 - 0.35			
Uranium-238	NR	0.283				0.20 - 0.37			
Zinc-65	4.92	4.33	A		13.6	3.03 - 5.63	0.25		Bq/sample

### Flags:

A = Result acceptable  
 W = Result acceptable with warning  
 N = Result not acceptable  
 L = Uncertainty potentially too low  
 H = Uncertainty potentially too high  
 Q = Participant should evaluate reported value  
 QL = Quantitation Limit  
 RW = Report Warning  
 NR = Not Reported

Bias <= 20%  
 20% < Bias <= 30%  
 Bias > 30%

### Flag Text

1 - False Positive  
 2 - False Negative  
 4 - Sensitivity Evaluation  
 5 - Total Metal  
 6 - Not Evaluated  
 7 - DL > CLP Limit  
 9 - Check QL  
 10 - Check Isomer  
 11 - False Positive Test, Value Not Reported  
 14 - Solubility Issue  
 15 - Refractory  
 16 - Reported zero uncertainty  
 17 - NOT DETECTED, reported a statistically zero result.  
 18 - Sensitivity evaluation, value not reported.

# Mixed Analyte Performance Evaluation Program

## Laboratory Results - Radiological Air Filter

ERLG01

Environmental Radiation Laboratory

Sample ID: MAPEP-05-RdF14

Georgia Institute of Tech.

Atlanta

GA

30332

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Americium-241	.15	0.158	A		-5.1	0.11 - 0.21	.02		Bq/sample
Cesium-134	3.7	3.85	A		-3.9	2.69 - 5.01	.3		Bq/sample
Cesium-137	3.2	3.23	A		-0.9	2.26 - 4.20	.3		Bq/sample
Cobalt-57	6.8	6.20	A		9.7	4.34 - 8.06	1		Bq/sample
Cobalt-60	2.9	2.85	A		1.8	1.99 - 3.70	.3		Bq/sample
Manganese-54	4.7	4.37	A		7.6	3.06 - 5.68	1	H	Bq/sample
Plutonium-238	.09	0.0969	A		-7.1	0.07 - 0.13	.01		Bq/sample
Plutonium-239/240	.09	0.0898	A		0.2	0.06 - 0.12	.01		Bq/sample
Strontium-90	2.1	2.25	A		-6.7	1.58 - 2.92	.1		Bq/sample
Uranium-234/233	NR	0.273				0.19 - 0.35			
Uranium-238	.27	0.283	A		-4.6	0.20 - 0.37	.04		Bq/sample
Zinc-65	5.0	4.33	A		15.5	3.03 - 5.63	1		Bq/sample

### Flags:

A = Result acceptable  
 W = Result acceptable with warning  
 N = Result not acceptable  
 L = Uncertainty potentially too low  
 H = Uncertainty potentially too high  
 Q = Participant should evaluate reported value  
 QL = Quantitation Limit  
 RW = Report Warning  
 NR = Not Reported

Bias <= 20%  
 20% < Bias <= 30%  
 Bias > 30%

### Flag Text

1 - False Positive  
 2 - False Negative  
 4 - Sensitivity Evaluation  
 5 - Total Metal  
 6 - Not Evaluated  
 7 - DL > CLP Limit  
 9 - Check QL  
 10 - Check Isomer  
 11 - False Positive Test, Value Not Reported  
 14 - Solubility Issue  
 15 - Refractory  
 16 - Reported zero uncertainty  
 17 - NOT DETECTED, reported a statistically zero result.  
 18 - Sensitivity evaluation, value not reported.

# Mixed Analyte Performance Evaluation Program

## Laboratory Results - Radiological Air Filter

ERPD99

Environmental Radiation Protection Division  
Mubarak Al-Kabeer Street, al-Awqaf Compl  
Sharq Kuwait 656

Sample ID: MAPEP-05-RdF14

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Americium-241	NR	0.158				0.11 - 0.21			
Cesium-134	4.24	3.85	A		10.1	2.69 - 5.01	0.29		Bq/sample
Cesium-137	3.33	3.23	A		3.1	2.26 - 4.20	0.65		Bq/sample
Cobalt-57	7.50	6.20	W		21.0	4.34 - 8.06	0.20	L	Bq/sample
Cobalt-60	2.90	2.85	A		1.8	1.99 - 3.70	0.37		Bq/sample
Manganese-54	5.34	4.37	W		22.2	3.06 - 5.68	0.80		Bq/sample
Plutonium-238	NR	0.0969				0.07 - 0.13			
Plutonium-239/240	NR	0.0898				0.06 - 0.12			
Strontium-90	NR	2.25				1.58 - 2.92			
Uranium-234/233	NR	0.273				0.19 - 0.35			
Uranium-238	NR	0.283				0.20 - 0.37			
Zinc-65	6.00	4.33	N		38.6	3.03 - 5.63	0.63		Bq/sample

### Flags:

A = Result acceptable  
W = Result acceptable with warning  
N = Result not acceptable  
L = Uncertainty potentially too low  
H = Uncertainty potentially too high  
Q = Participant should evaluate reported value  
QL = Quantitation Limit  
RW = Report Warning  
NR = Not Reported

Bias <= 20%  
20% < Bias <= 30%  
Bias > 30%

### Flag Text

1 - False Positive  
2 - False Negative  
4 - Sensitivity Evaluation  
5 - Total Metal  
6 - Not Evaluated  
7 - DL > CLP Limit  
9 - Check QL  
10 - Check Isomer  
11 - False Positive Test, Value Not Reported  
14 - Solubility Issue  
15 - Refractory  
16 - Reported zero uncertainty  
17 - NOT DETECTED, reported a statistically zero result.  
18 - Sensitivity evaluation, value not reported.

# Mixed Analyte Performance Evaluation Program

## Laboratory Results - Radiological Air Filter

FDHE01

Florida Dept of Health Environmental Laboratory  
 PO Box 680069  
 Orlando FL 32868-0069

Sample ID: MAPEP-05-RdF14

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Americium-241	0.18	0.158	A		13.9	0.11 - 0.21	0.03		Bq/sample
Cesium-134	4.04	3.85	A		4.9	2.69 - 5.01	0.06	L	Bq/sample
Cesium-137	3.55	3.23	A		9.9	2.26 - 4.20	0.09	L	Bq/sample
Cobalt-57	6.48	6.20	A		4.5	4.34 - 8.06	0.05	L	Bq/sample
Cobalt-60	2.96	2.85	A		3.9	1.99 - 3.70	0.06	L	Bq/sample
Manganese-54	5.0	4.37	A		14.4	3.06 - 5.68	0.1	L	Bq/sample
Plutonium-238	0.0934	0.0969	A		-3.6	0.07 - 0.13	0.0004	L	Bq/sample
Plutonium-239/240	0.1028	0.0898	A		14.5	0.06 - 0.12	0.0004	L	Bq/sample
Strontium-90	NR	2.25				1.58 - 2.92			
Uranium-234/233	NR	0.273				0.19 - 0.35			
Uranium-238	NR	0.283				0.20 - 0.37			
Zinc-65	5.07	4.33	A		17.1	3.03 - 5.63	0.15	L	Bq/sample

### Flags:

A = Result acceptable  
 W = Result acceptable with warning  
 N = Result not acceptable  
 L = Uncertainty potentially too low  
 H = Uncertainty potentially too high  
 Q = Participant should evaluate reported value  
 QL = Quantitation Limit  
 RW = Report Warning  
 NR = Not Reported

Bias <= 20%  
 20% < Bias <= 30%  
 Bias > 30%

### Flag Text

1 - False Positive  
 2 - False Negative  
 4 - Sensitivity Evaluation  
 5 - Total Metal  
 6 - Not Evaluated  
 7 - DL > CLP Limit  
 9 - Check QL  
 10 - Check Isomer  
 11 - False Positive Test, Value Not Reported  
 14 - Solubility Issue  
 15 - Refractory  
 16 - Reported zero uncertainty  
 17 - NOT DETECTED, reported a statistically zero result.  
 18 - Sensitivity evaluation, value not reported.

# Mixed Analyte Performance Evaluation Program

## Laboratory Results - Radiological Air Filter

FDOH01

Florida Dept. of Health, Mobile Environmental Radiologic  
 PO Box 680069  
 Orlando FL 32868-0069

Sample ID: MAPEP-05-RdF14

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Americium-241	.21	0.158	N		32.9	0.11 - 0.21	.04		Bq/sample
Cesium-134	4.1	3.85	A		6.5	2.69 - 5.01	0.1	L	Bq/sample
Cesium-137	3.4	3.23	A		5.3	2.26 - 4.20	0.1	L	Bq/sample
Cobalt-57	6.6	6.20	A		6.5	4.34 - 8.06	0.1	L	Bq/sample
Cobalt-60	2.9	2.85	A		1.8	1.99 - 3.70	0.1		Bq/sample
Manganese-54	4.6	4.37	A		5.3	3.06 - 5.68	0.1	L	Bq/sample
Plutonium-238	NR	0.0969				0.07 - 0.13			
Plutonium-239/240	NR	0.0898				0.06 - 0.12			
Strontium-90	NR	2.25				1.58 - 2.92			
Uranium-234/233	NR	0.273				0.19 - 0.35			
Uranium-238	NR	0.283				0.20 - 0.37			
Zinc-65	5.1	4.33	A		17.8	3.03 - 5.63	0.2		Bq/sample

### Flags:

A = Result acceptable  
 W = Result acceptable with warning  
 N = Result not acceptable  
     L = Uncertainty potentially too low  
     H = Uncertainty potentially too high  
 Q = Participant should evaluate reported value  
 QL = Quantitation Limit  
 RW = Report Warning  
 NR = Not Reported

Bias <= 20%  
 20% < Bias <= 30%  
 Bias > 30%

### Flag Text

1 - False Positive  
 2 - False Negative  
 4 - Sensitivity Evaluation  
 5 - Total Metal  
 6 - Not Evaluated  
 7 - DL > CLP Limit  
 9 - Check QL  
 10 - Check Isomer  
 11 - False Positive Test, Value Not Reported  
 14 - Solubility Issue  
 15 - Refractory  
 16 - Reported zero uncertainty  
 17 - NOT DETECTED, reported a statistically zero result.  
 18 - Sensitivity evaluation, value not reported.

# Mixed Analyte Performance Evaluation Program

## Laboratory Results - Radiological Air Filter

FNAL01

Fermi National Accelerator Laboratory (FermiLab)

Sample ID: MAPEP-05-RdF14

PO Box 500, MS325

Batavia IL 60510

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Americium-241	NR	0.158				0.11 - 0.21			
Cesium-134	4.02	3.85	A		4.4	2.69 - 5.01	0.15		Bq/sample
Cesium-137	3.46	3.23	A		7.1	2.26 - 4.20	0.26		Bq/sample
Cobalt-57	6.74	6.20	A		8.7	4.34 - 8.06	0.36		Bq/sample
Cobalt-60	3.16	2.85	A		10.9	1.99 - 3.70	0.17		Bq/sample
Manganese-54	4.74	4.37	A		8.5	3.06 - 5.68	0.35		Bq/sample
Plutonium-238	NR	0.0969				0.07 - 0.13			
Plutonium-239/240	NR	0.0898				0.06 - 0.12			
Strontium-90	NR	2.25				1.58 - 2.92			
Uranium-234/233	NR	0.273				0.19 - 0.35			
Uranium-238	NR	0.283				0.20 - 0.37			
Zinc-65	5.02	4.33	A		15.9	3.03 - 5.63	.38		Bq/sample

### Flags:

A = Result acceptable  
W = Result acceptable with warning  
N = Result not acceptable  
L = Uncertainty potentially too low  
H = Uncertainty potentially too high  
Q = Participant should evaluate reported value  
QL = Quantitation Limit  
RW = Report Warning  
NR = Not Reported

Bias <= 20%  
20% < Bias <= 30%  
Bias > 30%

### Flag Text

1 - False Positive  
2 - False Negative  
4 - Sensitivity Evaluation  
5 - Total Metal  
6 - Not Evaluated  
7 - DL > CLP Limit  
9 - Check QL  
10 - Check Isomer  
11 - False Positive Test, Value Not Reported  
14 - Solubility Issue  
15 - Refractory  
16 - Reported zero uncertainty  
17 - NOT DETECTED, reported a statistically zero result.  
18 - Sensitivity evaluation, value not reported.

# Mixed Analyte Performance Evaluation Program

## Laboratory Results - Radiological Air Filter

GENE01

General Engineering Laboratories, LLC

Sample ID: MAPEP-05-RdF14

2040 Savage Road

Charleston SC 29407

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Americium-241	0.164	0.158	A		3.8	0.11 - 0.21	0.015		Bq/sample
Cesium-134	3.470	3.85	A		-9.9	2.69 - 5.01	0.160		Bq/sample
Cesium-137	3.113	3.23	A		-3.6	2.26 - 4.20	0.130		Bq/sample
Cobalt-57	6.083	6.20	A		-1.9	4.34 - 8.06	0.206		Bq/sample
Cobalt-60	2.867	2.85	A		0.6	1.99 - 3.70	0.118		Bq/sample
Manganese-54	4.297	4.37	A		-1.7	3.06 - 5.68	0.194		Bq/sample
Plutonium-238	0.093	0.0969	A		-4.0	0.07 - 0.13	0.013		Bq/sample
Plutonium-239/240	0.079	0.0898	A		-12.0	0.06 - 0.12	0.011		Bq/sample
Strontium-90	2.465	2.25	A		9.6	1.58 - 2.92	0.132		Bq/sample
Uranium-234/233	0.280	0.273	A		2.6	0.19 - 0.35	0.019		Bq/sample
Uranium-238	0.281	0.283	A		-0.7	0.20 - 0.37	0.019		Bq/sample
Zinc-65	4.607	4.33	A		6.4	3.03 - 5.63	0.239		Bq/sample

### Flags:

A = Result acceptable  
W = Result acceptable with warning  
N = Result not acceptable  
L = Uncertainty potentially too low  
H = Uncertainty potentially too high  
Q = Participant should evaluate reported value  
QL = Quantitation Limit  
RW = Report Warning  
NR = Not Reported

Bias <= 20%  
20% < Bias <= 30%  
Bias > 30%

### Flag Text

1 - False Positive  
2 - False Negative  
4 - Sensitivity Evaluation  
5 - Total Metal  
6 - Not Evaluated  
7 - DL > CLP Limit  
9 - Check QL  
10 - Check Isomer  
11 - False Positive Test, Value Not Reported  
14 - Solubility Issue  
15 - Refractory  
16 - Reported zero uncertainty  
17 - NOT DETECTED, reported a statistically zero result.  
18 - Sensitivity evaluation, value not reported.

# Mixed Analyte Performance Evaluation Program

## Laboratory Results - Radiological Air Filter

GPLP01

GPL Laboratories, LLLP

Sample ID: MAPEP-05-RdF14

7210A Corporate Court

Frederick

MD

21703

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Americium-241	NR	0.158				0.11 - 0.21			
Cesium-134	4.56	3.85	A		18.4	2.69 - 5.01	0.245		Bq/sample
Cesium-137	5.08	3.23	N		57.3	2.26 - 4.20	0.344		Bq/sample
Cobalt-57	6.09	6.20	A		-1.8	4.34 - 8.06	0.294		Bq/sample
Cobalt-60	2.63	2.85	A		-7.7	1.99 - 3.70	0.204		Bq/sample
Manganese-54	4.09	4.37	A		-6.4	3.06 - 5.68	0.344		Bq/sample
Plutonium-238	NR	0.0969				0.07 - 0.13			
Plutonium-239/240	NR	0.0898				0.06 - 0.12			
Strontium-90	NR	2.25				1.58 - 2.92			
Uranium-234/233	NR	0.273				0.19 - 0.35			
Uranium-238	NR	0.283				0.20 - 0.37			
Zinc-65	3.94	4.33	A		-9.0	3.03 - 5.63	0.611		Bq/sample

### Flags:

A = Result acceptable  
W = Result acceptable with warning  
N = Result not acceptable  
L = Uncertainty potentially too low  
H = Uncertainty potentially too high  
Q = Participant should evaluate reported value  
QL = Quantitation Limit  
RW = Report Warning  
NR = Not Reported

Bias <= 20%  
20% < Bias <= 30%  
Bias > 30%

### Flag Text

1 - False Positive  
2 - False Negative  
4 - Sensitivity Evaluation  
5 - Total Metal  
6 - Not Evaluated  
7 - DL > CLP Limit  
9 - Check QL  
10 - Check Isomer  
11 - False Positive Test, Value Not Reported  
14 - Solubility Issue  
15 - Refractory  
16 - Reported zero uncertainty  
17 - NOT DETECTED, reported a statistically zero result.  
18 - Sensitivity evaluation, value not reported.

# Mixed Analyte Performance Evaluation Program

## Laboratory Results - Radiological Air Filter

*HERR01*

Washington Closure Hanford

*Sample ID:* MAPEP-05-RdF14

Radiological Counting Facility

Richland

WA

99352

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Americium-241	1.82E-1	0.158	A		15.2	0.11 - 0.21	4.55E-2	H	Bq/sample
Cesium-134	3.32	3.85	A		-13.8	2.69 - 5.01	8.07E-2	L	Bq/sample
Cesium-137	3.55	3.23	A		9.9	2.26 - 4.20	1.7E-1		Bq/sample
Cobalt-57	6.99	6.20	A		12.7	4.34 - 8.06	2.16E-1		Bq/sample
Cobalt-60	3.15	2.85	A		10.5	1.99 - 3.70	8.18E-2	L	Bq/sample
Manganese-54	4.81	4.37	A		10.1	3.06 - 5.68	1.86E-1		Bq/sample
Plutonium-238	NR	0.0969				0.07 - 0.13			
Plutonium-239/240	NR	0.0898				0.06 - 0.12			
Potassium-40	5.03E-1						1.4E-1		Bq/sample
Strontium-90	NR	2.25				1.58 - 2.92			
Uranium-234/233	NR	0.273				0.19 - 0.35			
Uranium-235	3.89E-2						1.44E-2		Bq/sample
Uranium-238	NR	0.283				0.20 - 0.37			
Zinc-65	5.4	4.33	W		24.7	3.03 - 5.63	2.13E-1		Bq/sample

### Flags:

A = Result acceptable

W = Result acceptable with warning 20% < Bias <= 30%

N = Result not acceptable

L = Uncertainty potentially too low

H = Uncertainty potentially too high

Q = Participant should evaluate reported value

QL = Quantitation Limit

RW = Report Warning

NR = Not Reported

Bias <= 20%

Bias <= 30%

Bias > 30%

### Flag Text

1 - False Positive

2 - False Negative

4 - Sensitivity Evaluation

5 - Total Metal

6 - Not Evaluated

7 - DL > CLP Limit

9 - Check QL

10 - Check Isomer

11 - False Positive Test, Value Not Reported

14 - Solubility Issue

15 - Refractory

16 - Reported zero uncertainty

17 - NOT DETECTED, reported a statistically zero result.

18 - Sensitivity evaluation, value not reported.

# Mixed Analyte Performance Evaluation Program

## Laboratory Results - Radiological Air Filter

ISUP01

ISU - Department of Physics/Health Physics/EAL

Sample ID: MAPEP-05-RdF14

785 S. 8th Ave, Rm 120

Pocatello

ID

83209-8106

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Americium-241	NR	0.158				0.11 - 0.21			
Cesium-134	3.5	3.85	A		-9.1	2.69 - 5.01	0.1	L	Bq/sample
Cesium-137	3.2	3.23	A		-0.9	2.26 - 4.20	0.1		Bq/sample
Cobalt-57	6.1	6.20	A		-1.6	4.34 - 8.06	0.1	L	Bq/sample
Cobalt-60	2.8	2.85	A		-1.8	1.99 - 3.70	0.1		Bq/sample
Manganese-54	4.2	4.37	A		-3.9	3.06 - 5.68	0.1	L	Bq/sample
Plutonium-238	NR	0.0969				0.07 - 0.13			
Plutonium-239/240	NR	0.0898				0.06 - 0.12			
Strontium-90	NR	2.25				1.58 - 2.92			
Uranium-234/233	NR	0.273				0.19 - 0.35			
Uranium-238	NR	0.283				0.20 - 0.37			
Zinc-65	4.4	4.33	A		1.6	3.03 - 5.63	0.2		Bq/sample

### Flags:

A = Result acceptable

W = Result acceptable with warning

N = Result not acceptable

L = Uncertainty potentially too low

H = Uncertainty potentially too high

Q = Participant should evaluate reported value

QL = Quantitation Limit

RW = Report Warning

NR = Not Reported

Bias <= 20%

20% < Bias <= 30%

Bias > 30%

### Flag Text

1 - False Positive

2 - False Negative

4 - Sensitivity Evaluation

5 - Total Metal

6 - Not Evaluated

7 - DL > CLP Limit

9 - Check QL

10 - Check Isomer

11 - False Positive Test, Value Not Reported

14 - Solubility Issue

15 - Refractory

16 - Reported zero uncertainty

17 - NOT DETECTED, reported a statistically zero result.

18 - Sensitivity evaluation, value not reported.

# Mixed Analyte Performance Evaluation Program

## Laboratory Results - Radiological Air Filter

JAEC99

Radiation Measurements Laboratory  
Jordan Atomic Energy Commission  
Amman

Sample ID: MAPEP-05-RdF14

00962 6

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Americium-241	0.798	0.158	N		405.1	0.11 - 0.21	0.008	L	Bq/sample
Cesium-134	3.33	3.85	A		-13.5	2.69 - 5.01	0.07	L	Bq/sample
Cesium-137	3.08	3.23	A		-4.6	2.26 - 4.20	0.13		Bq/sample
Cobalt-57	6.00	6.20	A		-3.2	4.34 - 8.06	0.10	L	Bq/sample
Cobalt-60	2.82	2.85	A		-1.1	1.99 - 3.70	0.09		Bq/sample
Manganese-54	4.31	4.37	A		-1.4	3.06 - 5.68	0.12	L	Bq/sample
Plutonium-238	0.226	0.0969	N		133.2	0.07 - 0.13	0.0012	L	Bq/sample
Plutonium-239/240	0.157	0.0898	N		74.8	0.06 - 0.12	0.0008	L	Bq/sample
Strontium-90	1.084	2.25	N		-51.8	1.58 - 2.92	0.153		Bq/sample
Uranium-234/233	0.277	0.273	A		1.5	0.19 - 0.35	0.03		Bq/sample
Uranium-238	0.305	0.283	A		7.8	0.20 - 0.37	0.03		Bq/sample
Zinc-65	4.58	4.33	A		5.8	3.03 - 5.63	0.19		Bq/sample

### Flags:

A = Result acceptable  
W = Result acceptable with warning  
N = Result not acceptable  
L = Uncertainty potentially too low  
H = Uncertainty potentially too high  
Q = Participant should evaluate reported value  
QL = Quantitation Limit  
RW = Report Warning  
NR = Not Reported

Bias <= 20%  
20% < Bias <= 30%  
Bias > 30%

### Flag Text

1 - False Positive  
2 - False Negative  
4 - Sensitivity Evaluation  
5 - Total Metal  
6 - Not Evaluated  
7 - DL > CLP Limit  
9 - Check QL  
10 - Check Isomer  
11 - False Positive Test, Value Not Reported  
14 - Solubility Issue  
15 - Refractory  
16 - Reported zero uncertainty  
17 - NOT DETECTED, reported a statistically zero result.  
18 - Sensitivity evaluation, value not reported.

# Mixed Analyte Performance Evaluation Program

## Laboratory Results - Radiological Air Filter

JLNN01

Jefferson Laboratory

12000 Jefferson Ave

Newport News

VA

23606

Sample ID: MAPEP-05-RdF14

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Americium-241	NR	0.158				0.11 - 0.21			
Cesium-134	3.17	3.85	A		-17.7	2.69 - 5.01	0.18		Bq/sample
Cesium-137	3.15	3.23	A		-2.5	2.26 - 4.20	0.23		Bq/sample
Cobalt-57	6.51	6.20	A		5.0	4.34 - 8.06	0.18	L	Bq/sample
Cobalt-60	2.87	2.85	A		0.7	1.99 - 3.70	0.19		Bq/sample
Manganese-54	4.63	4.37	A		5.9	3.06 - 5.68	0.31		Bq/sample
Plutonium-238	NR	0.0969				0.07 - 0.13			
Plutonium-239/240	NR	0.0898				0.06 - 0.12			
Strontium-90	NR	2.25				1.58 - 2.92			
Uranium-234/233	NR	0.273				0.19 - 0.35			
Uranium-238	NR	0.283				0.20 - 0.37			
Zinc-65	3.48	4.33	A		-19.6	3.03 - 5.63	0.56		Bq/sample

### Flags:

A = Result acceptable  
 W = Result acceptable with warning  
 N = Result not acceptable  
 L = Uncertainty potentially too low  
 H = Uncertainty potentially too high  
 Q = Participant should evaluate reported value  
 QL = Quantitation Limit  
 RW = Report Warning  
 NR = Not Reported

Bias <= 20%  
 20% < Bias <= 30%  
 Bias > 30%

### Flag Text

1 - False Positive  
 2 - False Negative  
 4 - Sensitivity Evaluation  
 5 - Total Metal  
 6 - Not Evaluated  
 7 - DL > CLP Limit  
 9 - Check QL  
 10 - Check Isomer  
 11 - False Positive Test, Value Not Reported  
 14 - Solubility Issue  
 15 - Refractory  
 16 - Reported zero uncertainty  
 17 - NOT DETECTED, reported a statistically zero result.  
 18 - Sensitivity evaluation, value not reported.

# Mixed Analyte Performance Evaluation Program

## Laboratory Results - Radiological Air Filter

LAWR01

LAWRENCE BERKELEY NATIONAL LABORATORY

Sample ID: MAPEP-05-RdF14

1 CYCLOTRON RD.

BERKELEY CA 94720

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Americium-241	.194	0.158	W		22.8	0.11 - 0.21	.114	H	Bq/sample
Cesium-134	3.01	3.85	W		-21.8	2.69 - 5.01	.04	L	Bq/sample
Cesium-137	3.20	3.23	A		-0.9	2.26 - 4.20	.05	L	Bq/sample
Cobalt-57	6.16	6.20	A		-0.6	4.34 - 8.06	.11	L	Bq/sample
Cobalt-60	2.89	2.85	A		1.4	1.99 - 3.70	.07	L	Bq/sample
Manganese-54	4.59	4.37	A		5.0	3.06 - 5.68	.09	L	Bq/sample
Plutonium-238	NR	0.0969				0.07 - 0.13			
Plutonium-239/240	NR	0.0898				0.06 - 0.12			
Strontium-90	NR	2.25				1.58 - 2.92			
Uranium-234/233	NR	0.273				0.19 - 0.35			
Uranium-238	NR	0.283				0.20 - 0.37			
Zinc-65	5.16	4.33	A		19.2	3.03 - 5.63	.13	L	Bq/sample

### Flags:

A = Result acceptable  
 W = Result acceptable with warning  
 N = Result not acceptable  
 L = Uncertainty potentially too low  
 H = Uncertainty potentially too high  
 Q = Participant should evaluate reported value  
 QL = Quantitation Limit  
 RW = Report Warning  
 NR = Not Reported

Bias <= 20%  
 20% < Bias <= 30%  
 Bias > 30%

### Flag Text

1 - False Positive  
 2 - False Negative  
 4 - Sensitivity Evaluation  
 5 - Total Metal  
 6 - Not Evaluated  
 7 - DL > CLP Limit  
 9 - Check QL  
 10 - Check Isomer  
 11 - False Positive Test, Value Not Reported  
 14 - Solubility Issue  
 15 - Refractory  
 16 - Reported zero uncertainty  
 17 - NOT DETECTED, reported a statistically zero result.  
 18 - Sensitivity evaluation, value not reported.

# Mixed Analyte Performance Evaluation Program

## Laboratory Results - Radiological Air Filter

LOCK01

ICP Analytical Laboratories Department

Sample ID: MAPEP-05-RdF14

CH2M-WG Idaho, LLC

Idaho Falls

ID

83415-5210

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Americium-241	0.170	0.158	A		7.6	0.11 - 0.21	0.026		Bq/sample
Cesium-134	2.90	3.85	W		-24.7	2.69 - 5.01	0.23		Bq/sample
Cesium-137	2.52	3.23	W		-22.0	2.26 - 4.20	0.21		Bq/sample
Cobalt-57	4.96	6.20	A		-20.0	4.34 - 8.06	0.29		Bq/sample
Cobalt-60	2.44	2.85	A		-14.4	1.99 - 3.70	0.17		Bq/sample
Manganese-54	3.59	4.37	A		-17.8	3.06 - 5.68	0.26		Bq/sample
Plutonium-238	0.0932	0.0969	A		-3.8	0.07 - 0.13	0.0132		Bq/sample
Plutonium-239/240	0.0769	0.0898	A		-14.4	0.06 - 0.12	0.0113		Bq/sample
Strontium-90	2.00	2.25	A		-11.1	1.58 - 2.92	0.03	L	Bq/sample
Uranium-234/233	0.281	0.273	A		2.9	0.19 - 0.35	0.036		Bq/sample
Uranium-238	0.249	0.283	A		-12.0	0.20 - 0.37	0.037		Bq/sample
Zinc-65	3.68	4.33	A		-15.0	3.03 - 5.63	0.32		Bq/sample

### Flags:

A = Result acceptable  
 W = Result acceptable with warning  
 N = Result not acceptable  
 L = Uncertainty potentially too low  
 H = Uncertainty potentially too high  
 Q = Participant should evaluate reported value  
 QL = Quantitation Limit  
 RW = Report Warning  
 NR = Not Reported

Bias <= 20%  
 20% < Bias <= 30%  
 Bias > 30%

### Flag Text

1 - False Positive  
 2 - False Negative  
 4 - Sensitivity Evaluation  
 5 - Total Metal  
 6 - Not Evaluated  
 7 - DL > CLP Limit  
 9 - Check QL  
 10 - Check Isomer  
 11 - False Positive Test, Value Not Reported  
 14 - Solubility Issue  
 15 - Refractory  
 16 - Reported zero uncertainty  
 17 - NOT DETECTED, reported a statistically zero result.  
 18 - Sensitivity evaluation, value not reported.

# Mixed Analyte Performance Evaluation Program

## Laboratory Results - Radiological Air Filter

LOCK03

RADIATION MEASUREMENTS LABORATORY/AEDL

Sample ID: MAPEP-05-RdF14

INEEL

Idaho Falls

ID

83415-7111

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Americium-241	0.143	0.158	A		-9.5	0.11 - 0.21	0.007		Bq/sample
Cesium-134	3.5	3.85	A		-9.1	2.69 - 5.01	0.3		Bq/sample
Cesium-137	3.1	3.23	A		-4.0	2.26 - 4.20	0.2		Bq/sample
Cobalt-57	6.1	6.20	A		-1.6	4.34 - 8.06	0.4		Bq/sample
Cobalt-60	2.9	2.85	A		1.8	1.99 - 3.70	0.2		Bq/sample
Manganese-54	4.4	4.37	A		0.7	3.06 - 5.68	0.3		Bq/sample
Plutonium-238	0.102	0.0969	A		5.3	0.07 - 0.13	0.005		Bq/sample
Plutonium-239/240	0.093	0.0898	A		3.6	0.06 - 0.12	0.005		Bq/sample
Strontium-90	NR	2.25				1.58 - 2.92			
Uranium-234/233	0.268	0.273	A		-1.8	0.19 - 0.35	0.012		Bq/sample
Uranium-238	0.276	0.283	A		-2.5	0.20 - 0.37	0.012		Bq/sample
Zinc-65	4.8	4.33	A		10.9	3.03 - 5.63	0.4		Bq/sample

### Flags:

A = Result acceptable  
 W = Result acceptable with warning  
 N = Result not acceptable  
 L = Uncertainty potentially too low  
 H = Uncertainty potentially too high  
 Q = Participant should evaluate reported value  
 QL = Quantitation Limit  
 RW = Report Warning  
 NR = Not Reported

Bias <= 20%  
 20% < Bias <= 30%  
 Bias > 30%

### Flag Text

1 - False Positive  
 2 - False Negative  
 4 - Sensitivity Evaluation  
 5 - Total Metal  
 6 - Not Evaluated  
 7 - DL > CLP Limit  
 9 - Check QL  
 10 - Check Isomer  
 11 - False Positive Test, Value Not Reported  
 14 - Solubility Issue  
 15 - Refractory  
 16 - Reported zero uncertainty  
 17 - NOT DETECTED, reported a statistically zero result.  
 18 - Sensitivity evaluation, value not reported.

# Mixed Analyte Performance Evaluation Program

## Laboratory Results - Radiological Air Filter

MART01

USEC, Inc.

Sample ID: MAPEP-05-RdF14

Lab COC, Bldg. X-710, Rm 222

Piketon

OH

45661-

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Americium-241	0.153	0.158	A		-3.2	0.11 - 0.21	0.016		Bq/sample
Cesium-134	3.5	3.85	A		-9.1	2.69 - 5.01	0.2		Bq/sample
Cesium-137	3.4	3.23	A		5.3	2.26 - 4.20	0.2		Bq/sample
Cobalt-57	6.2	6.20	A		0.0	4.34 - 8.06	0.3		Bq/sample
Cobalt-60	3.1	2.85	A		8.8	1.99 - 3.70	0.2		Bq/sample
Manganese-54	4.6	4.37	A		5.3	3.06 - 5.68	0.3		Bq/sample
Plutonium-238	0.105	0.0969	A		8.4	0.07 - 0.13	0.013		Bq/sample
Plutonium-239/240	0.095	0.0898	A		5.8	0.06 - 0.12	0.012		Bq/sample
Strontium-90	2.16	2.25	A		-4.0	1.58 - 2.92	0.09		Bq/sample
Uranium-234/233	0.258	0.273	A		-5.5	0.19 - 0.35	0.023		Bq/sample
Uranium-238	0.273	0.283	A		-3.5	0.20 - 0.37	0.025		Bq/sample
Zinc-65	4.5	4.33	A		3.9	3.03 - 5.63	0.4		Bq/sample

### Flags:

A = Result acceptable

W = Result acceptable with warning 20% < Bias <= 30%

N = Result not acceptable Bias > 30%

L = Uncertainty potentially too low

H = Uncertainty potentially too high

Q = Participant should evaluate reported value

QL = Quantitation Limit

RW = Report Warning

NR = Not Reported

### Flag Text

1 - False Positive

2 - False Negative

4 - Sensitivity Evaluation

5 - Total Metal

6 - Not Evaluated

7 - DL > CLP Limit

9 - Check QL

10 - Check Isomer

11 - False Positive Test, Value Not Reported

14 - Solubility Issue

15 - Refractory

16 - Reported zero uncertainty

17 - NOT DETECTED, reported a statistically zero result.

18 - Sensitivity evaluation, value not reported.

# Mixed Analyte Performance Evaluation Program

## Laboratory Results - Radiological Air Filter

MART02

United States Enrichment Corporation

Sample ID: MAPEP-05-RdF14

5600 Hobbs Road

Paducah KY 42001-

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Americium-241	0.148	0.158	A		-6.3	0.11 - 0.21	0.0137		Bq/sample
Cesium-134	3.22	3.85	A		-16.4	2.69 - 5.01	0.177		Bq/sample
Cesium-137	3.07	3.23	A		-5.0	2.26 - 4.20	0.197		Bq/sample
Cobalt-57	6.31	6.20	A		1.8	4.34 - 8.06	0.363		Bq/sample
Cobalt-60	2.75	2.85	A		-3.5	1.99 - 3.70	0.147		Bq/sample
Manganese-54	4.24	4.37	A		-3.0	3.06 - 5.68	0.256		Bq/sample
Plutonium-238	0.0960	0.0969	A		-0.9	0.07 - 0.13	0.00910		Bq/sample
Plutonium-239/240	0.0923	0.0898	A		2.8	0.06 - 0.12	0.00875		Bq/sample
Strontium-90	2.08	2.25	A		-7.6	1.58 - 2.92	0.0925		Bq/sample
Uranium-234/233	0.259	0.273	A		-5.1	0.19 - 0.35	0.0241		Bq/sample
Uranium-238	0.257	0.283	A		-9.2	0.20 - 0.37	0.0239		Bq/sample
Zinc-65	4.85	4.33	A		12.0	3.03 - 5.63	0.286		Bq/sample

### Flags:

A = Result acceptable  
W = Result acceptable with warning  
N = Result not acceptable  
L = Uncertainty potentially too low  
H = Uncertainty potentially too high  
Q = Participant should evaluate reported value  
QL = Quantitation Limit  
RW = Report Warning  
NR = Not Reported

Bias <= 20%  
20% < Bias <= 30%  
Bias > 30%

### Flag Text

1 - False Positive  
2 - False Negative  
4 - Sensitivity Evaluation  
5 - Total Metal  
6 - Not Evaluated  
7 - DL > CLP Limit  
9 - Check QL  
10 - Check Isomer  
11 - False Positive Test, Value Not Reported  
14 - Solubility Issue  
15 - Refractory  
16 - Reported zero uncertainty  
17 - NOT DETECTED, reported a statistically zero result.  
18 - Sensitivity evaluation, value not reported.

# Mixed Analyte Performance Evaluation Program

## Laboratory Results - Radiological Air Filter

MART03

Radioactive Material Analysis Laboratory

Sample ID: MAPEP-05-RdF14

ORNL

Oak Ridge

TN

37831-6043

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Americium-241	0.13	0.158	A		-17.7	0.11 - 0.21	0.01		Bq/sample
Cesium-134	3.12	3.85	A		-19.0	2.69 - 5.01	0.31		Bq/sample
Cesium-137	3.22	3.23	A		-0.3	2.26 - 4.20	0.32		Bq/sample
Cobalt-57	6.30	6.20	A		1.6	4.34 - 8.06	0.63		Bq/sample
Cobalt-60	2.92	2.85	A		2.5	1.99 - 3.70	0.29		Bq/sample
Manganese-54	4.56	4.37	A		4.3	3.06 - 5.68	0.46		Bq/sample
Plutonium-238	0.083	0.0969	A		-14.3	0.07 - 0.13	0.008		Bq/sample
Plutonium-239/240	0.076	0.0898	A		-15.4	0.06 - 0.12	0.008		Bq/sample
Strontium-90	1.85	2.25	A		-17.8	1.58 - 2.92	0.18		Bq/sample
Uranium-234/233	0.28	0.273	A		2.6	0.19 - 0.35	0.03		Bq/sample
Uranium-238	0.29	0.283	A		2.5	0.20 - 0.37	0.03		Bq/sample
Zinc-65	4.97	4.33	A		14.8	3.03 - 5.63	0.50		Bq/sample

### Flags:

A = Result acceptable  
W = Result acceptable with warning  
N = Result not acceptable  
L = Uncertainty potentially too low  
H = Uncertainty potentially too high  
Q = Participant should evaluate reported value  
QL = Quantitation Limit  
RW = Report Warning  
NR = Not Reported

Bias <= 20%  
20% < Bias <= 30%  
Bias > 30%

### Flag Text

1 - False Positive  
2 - False Negative  
4 - Sensitivity Evaluation  
5 - Total Metal  
6 - Not Evaluated  
7 - DL > CLP Limit  
9 - Check QL  
10 - Check Isomer  
11 - False Positive Test, Value Not Reported  
14 - Solubility Issue  
15 - Refractory  
16 - Reported zero uncertainty  
17 - NOT DETECTED, reported a statistically zero result.  
18 - Sensitivity evaluation, value not reported.

# Mixed Analyte Performance Evaluation Program

## Laboratory Results - Radiological Air Filter

MDPH01

MDPH-Radiation Control Program

Sample ID: MAPEP-05-RdF14

MERL-Room 002

Jamaica Plain MA 02130-3597

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Americium-241	0.15	0.158	A		-5.1	0.11 - 0.21	0.03		Bq/sample
Cesium-134	2.58	3.85	N		-33.0	2.69 - 5.01	0.06	L	Bq/sample
Cesium-137	2.48	3.23	W		-23.2	2.26 - 4.20	0.16		Bq/sample
Cobalt-57	5.76	6.20	A		-7.1	4.34 - 8.06	0.17	L	Bq/sample
Cobalt-60	2.83	2.85	A		-0.7	1.99 - 3.70	0.06	L	Bq/sample
Manganese-54	4.34	4.37	A		-0.7	3.06 - 5.68	0.22		Bq/sample
Plutonium-238	NR	0.0969				0.07 - 0.13			
Plutonium-239/240	NR	0.0898				0.06 - 0.12			
Strontium-90	NR	2.25				1.58 - 2.92			
Uranium-234/233	NR	0.273				0.19 - 0.35			
Uranium-238	NR	0.283				0.20 - 0.37			
Zinc-65	6.20	4.33	N		43.2	3.03 - 5.63	0.34		Bq/sample

### Flags:

A = Result acceptable  
W = Result acceptable with warning  
N = Result not acceptable  
L = Uncertainty potentially too low  
H = Uncertainty potentially too high  
Q = Participant should evaluate reported value  
QL = Quantitation Limit  
RW = Report Warning  
NR = Not Reported

Bias <= 20%  
20% < Bias <= 30%  
Bias > 30%

### Flag Text

1 - False Positive  
2 - False Negative  
4 - Sensitivity Evaluation  
5 - Total Metal  
6 - Not Evaluated  
7 - DL > CLP Limit  
9 - Check QL  
10 - Check Isomer  
11 - False Positive Test, Value Not Reported  
14 - Solubility Issue  
15 - Refractory  
16 - Reported zero uncertainty  
17 - NOT DETECTED, reported a statistically zero result.  
18 - Sensitivity evaluation, value not reported.

# Mixed Analyte Performance Evaluation Program

## Laboratory Results - Radiological Air Filter

NARL01

National Air and Radiation Environmental Laboratory  
540 S. Morris Ave.  
Montgomery AL 36115-2601

Sample ID: MAPEP-05-RdF14

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Americium-241	0.163	0.158	A		3.2	0.11 - 0.21	0.019		Bq/sample
Cesium-134	3.37	3.85	A		-12.5	2.69 - 5.01	0.11		Bq/sample
Cesium-137	3.17	3.23	A		-1.9	2.26 - 4.20	0.11		Bq/sample
Cobalt-57	5.80	6.20	A		-6.5	4.34 - 8.06	0.17	L	Bq/sample
Cobalt-60	2.66	2.85	A		-6.7	1.99 - 3.70	0.09		Bq/sample
Manganese-54	4.32	4.37	A		-1.1	3.06 - 5.68	0.15		Bq/sample
Plutonium-238	0.100	0.0969	A		3.2	0.07 - 0.13	0.010		Bq/sample
Plutonium-239/240	0.088	0.0898	A		-2.0	0.06 - 0.12	0.009		Bq/sample
Strontium-90	NR	2.25				1.58 - 2.92			
Uranium-234/233	0.286	0.273	A		4.8	0.19 - 0.35	0.022		Bq/sample
Uranium-238	0.272	0.283	A		-3.9	0.20 - 0.37	0.02		Bq/sample
Zinc-65	4.45	4.33	A		2.8	3.03 - 5.63	0.19		Bq/sample

### Flags:

A = Result acceptable  
W = Result acceptable with warning  
N = Result not acceptable  
L = Uncertainty potentially too low  
H = Uncertainty potentially too high  
Q = Participant should evaluate reported value  
QL = Quantitation Limit  
RW = Report Warning  
NR = Not Reported

Bias <= 20%  
20% < Bias <= 30%  
Bias > 30%

### Flag Text

1 - False Positive  
2 - False Negative  
4 - Sensitivity Evaluation  
5 - Total Metal  
6 - Not Evaluated  
7 - DL > CLP Limit  
9 - Check QL  
10 - Check Isomer  
11 - False Positive Test, Value Not Reported  
14 - Solubility Issue  
15 - Refractory  
16 - Reported zero uncertainty  
17 - NOT DETECTED, reported a statistically zero result.  
18 - Sensitivity evaluation, value not reported.

# Mixed Analyte Performance Evaluation Program

## Laboratory Results - Radiological Air Filter

NES101

BWXT Services-Nuclear Environmental Laboratory Servi  
Lynchburg Technology Center  
Lynchburg VA 24504-5447

Sample ID: MAPEP-05-RdF14

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Americium-241	0.409	0.158	N		158.9	0.11 - 0.21	0.023		Bq/sample
Cesium-134	2.59	3.85	N		-32.7	2.69 - 5.01	0.12		Bq/sample
Cesium-137	2.53	3.23	W		-21.7	2.26 - 4.20	0.10		Bq/sample
Cobalt-57	5.48	6.20	A		-11.6	4.34 - 8.06	0.10	L	Bq/sample
Cobalt-60	2.48	2.85	A		-13.0	1.99 - 3.70	0.08		Bq/sample
Manganese-54	3.90	4.37	A		-10.8	3.06 - 5.68	0.19		Bq/sample
Plutonium-238	0.085	0.0969	A		-12.3	0.07 - 0.13	0.008		Bq/sample
Plutonium-239/240	0.068	0.0898	W		-24.3	0.06 - 0.12	0.007		Bq/sample
Strontium-90	1.71	2.25	W		-24.0	1.58 - 2.92	0.13		Bq/sample
Uranium-234/233	0.235	0.273	A		-13.9	0.19 - 0.35	0.015		Bq/sample
Uranium-238	0.263	0.283	A		-7.1	0.20 - 0.37	0.016		Bq/sample
Zinc-65	4.03	4.33	A		-6.9	3.03 - 5.63	0.18		Bq/sample

### Flags:

A = Result acceptable  
W = Result acceptable with warning  
N = Result not acceptable  
L = Uncertainty potentially too low  
H = Uncertainty potentially too high  
Q = Participant should evaluate reported value  
QL = Quantitation Limit  
RW = Report Warning  
NR = Not Reported

Bias <= 20%  
20% < Bias <= 30%  
Bias > 30%

### Flag Text

1 - False Positive  
2 - False Negative  
4 - Sensitivity Evaluation  
5 - Total Metal  
6 - Not Evaluated  
7 - DL > CLP Limit  
9 - Check QL  
10 - Check Isomer  
11 - False Positive Test, Value Not Reported  
14 - Solubility Issue  
15 - Refractory  
16 - Reported zero uncertainty  
17 - NOT DETECTED, reported a statistically zero result.  
18 - Sensitivity evaluation, value not reported.

# Mixed Analyte Performance Evaluation Program

## Laboratory Results - Radiological Air Filter

NJDH01

New Jersey Dept. of Health & Senior Services, PHEL, E  
Market and Warren Streets  
Trenton NJ 08625-0361

Sample ID: MAPEP-05-RdF14

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Americium-241	0.175	0.158	A		10.8	0.11 - 0.21	0.046	H	Bq/sample
Cesium-134	3.67	3.85	A		-4.7	2.69 - 5.01	0.11	L	Bq/sample
Cesium-137	3.54	3.23	A		9.6	2.26 - 4.20	0.27		Bq/sample
Cobalt-57	6.74	6.20	A		8.7	4.34 - 8.06	0.22		Bq/sample
Cobalt-60	3.02	2.85	A		6.0	1.99 - 3.70	0.10		Bq/sample
Manganese-54	4.77	4.37	A		9.2	3.06 - 5.68	0.32		Bq/sample
Plutonium-238	NR	0.0969				0.07 - 0.13			
Plutonium-239/240	NR	0.0898				0.06 - 0.12			
Strontium-90	NR	2.25				1.58 - 2.92			
Uranium-234/233	NR	0.273				0.19 - 0.35			
Uranium-238	NR	0.283				0.20 - 0.37			
Zinc-65	4.70	4.33	A		8.5	3.03 - 5.63	0.23		Bq/sample

### Flags:

A = Result acceptable  
W = Result acceptable with warning  
N = Result not acceptable  
L = Uncertainty potentially too low  
H = Uncertainty potentially too high  
Q = Participant should evaluate reported value  
QL = Quantitation Limit  
RW = Report Warning  
NR = Not Reported

Bias <= 20%  
20% < Bias <= 30%  
Bias > 30%

### Flag Text

1 - False Positive  
2 - False Negative  
4 - Sensitivity Evaluation  
5 - Total Metal  
6 - Not Evaluated  
7 - DL > CLP Limit  
9 - Check QL  
10 - Check Isomer  
11 - False Positive Test, Value Not Reported  
14 - Solubility Issue  
15 - Refractory  
16 - Reported zero uncertainty  
17 - NOT DETECTED, reported a statistically zero result.  
18 - Sensitivity evaluation, value not reported.

# Mixed Analyte Performance Evaluation Program

## Laboratory Results - Radiological Air Filter

NTSIO1

Nuclear Technology Services, Inc.

Sample ID: MAPEP-05-RdF14

635 Hembree Parkway

Roswell

GA

30076

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Americium-241	0.138	0.158	A		-12.7	0.11 - 0.21	0.005		Bq/sample
Cesium-134	3.180	3.85	A		-17.4	2.69 - 5.01	0.620		Bq/sample
Cesium-137	3.190	3.23	A		-1.2	2.26 - 4.20	0.620		Bq/sample
Cobalt-57	5.470	6.20	A		-11.8	4.34 - 8.06	0.860		Bq/sample
Cobalt-60	2.980	2.85	A		4.6	1.99 - 3.70	0.520		Bq/sample
Manganese-54	4.610	4.37	A		5.5	3.06 - 5.68	0.850		Bq/sample
Plutonium-238	0.098	0.0969	A		1.1	0.07 - 0.13	0.005		Bq/sample
Plutonium-239/240	0.089	0.0898	A		-0.9	0.06 - 0.12	0.005		Bq/sample
Strontium-90	1.518	2.25	N		-32.5	1.58 - 2.92	0.092		Bq/sample
Uranium-234/233	0.233	0.273	A		-14.7	0.19 - 0.35	0.008		Bq/sample
Uranium-235	0.015						0.004		Bq/sample
Uranium-238	0.238	0.283	A		-15.9	0.20 - 0.37	0.008		Bq/sample
Zinc-65	4.500	4.33	A		3.9	3.03 - 5.63	0.820		Bq/sample

### Flags:

A = Result acceptable

W = Result acceptable with warning

N = Result not acceptable

L = Uncertainty potentially too low

H = Uncertainty potentially too high

Q = Participant should evaluate reported value

QL = Quantitation Limit

RW = Report Warning

NR = Not Reported

Bias <= 20%

20% < Bias <= 30%

Bias > 30%

### Flag Text

1 - False Positive

2 - False Negative

4 - Sensitivity Evaluation

5 - Total Metal

6 - Not Evaluated

7 - DL > CLP Limit

9 - Check QL

10 - Check Isomer

11 - False Positive Test, Value Not Reported

14 - Solubility Issue

15 - Refractory

16 - Reported zero uncertainty

17 - NOT DETECTED, reported a statistically zero result.

18 - Sensitivity evaluation, value not reported.

# Mixed Analyte Performance Evaluation Program

## Laboratory Results - Radiological Air Filter

ODH101

Ohio Department of Health Laboratory  
1571 Perry St  
Columbus OH 43201

Sample ID: MAPEP-05-RdF14

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Americium-241	NR	0.158				0.11 - 0.21			
Cesium-134	3.59	3.85	A		-6.8	2.69 - 5.01	0.053	L	Bq/sample
Cesium-137	3.508	3.23	A		8.6	2.26 - 4.20	.055	L	Bq/sample
Cobalt-57	6.527	6.20	A		5.3	4.34 - 8.06	0.036	L	Bq/sample
Cobalt-60	2.941	2.85	A		3.2	1.99 - 3.70	.058	L	Bq/sample
Manganese-54	4.837	4.37	A		10.7	3.06 - 5.68	0.070	L	Bq/sample
Plutonium-238	NR	0.0969				0.07 - 0.13			
Plutonium-239/240	NR	0.0898				0.06 - 0.12			
Strontium-90	NR	2.25				1.58 - 2.92			
Uranium-234/233	NR	0.273				0.19 - 0.35			
Uranium-238	NR	0.283				0.20 - 0.37			
Zinc-65	5.10	4.33	A		17.8	3.03 - 5.63	0.13	L	Bq/sample

### Flags:

A = Result acceptable  
W = Result acceptable with warning  
N = Result not acceptable  
L = Uncertainty potentially too low  
H = Uncertainty potentially too high  
Q = Participant should evaluate reported value  
QL = Quantitation Limit  
RW = Report Warning  
NR = Not Reported

Bias <= 20%  
20% < Bias <= 30%  
Bias > 30%

### Flag Text

1 - False Positive  
2 - False Negative  
4 - Sensitivity Evaluation  
5 - Total Metal  
6 - Not Evaluated  
7 - DL > CLP Limit  
9 - Check QL  
10 - Check Isomer  
11 - False Positive Test, Value Not Reported  
14 - Solubility Issue  
15 - Refractory  
16 - Reported zero uncertainty  
17 - NOT DETECTED, reported a statistically zero result.  
18 - Sensitivity evaluation, value not reported.

# Mixed Analyte Performance Evaluation Program

## Laboratory Results - Radiological Air Filter

ORISO1

ORISE/ESSAP

Sample ID: MAPEP-05-RdF14

PO Box 117

Oak Ridge

TN

37831-0117

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Americium-241	0.14	0.158	A		-11.4	0.11 - 0.21	0.01		Bq/sample
Cesium-134	4.10	3.85	A		6.5	2.69 - 5.01	0.29		Bq/sample
Cesium-137	3.20	3.23	A		-0.9	2.26 - 4.20	0.24		Bq/sample
Cobalt-57	5.88	6.20	A		-5.2	4.34 - 8.06	0.17	L	Bq/sample
Cobalt-60	2.92	2.85	A		2.5	1.99 - 3.70	0.23		Bq/sample
Manganese-54	3.93	4.37	A		-10.1	3.06 - 5.68	0.26		Bq/sample
Plutonium-238	0.101	0.0969	A		4.2	0.07 - 0.13	0.004		Bq/sample
Plutonium-239/240	0.096	0.0898	A		6.9	0.06 - 0.12	0.004		Bq/sample
Strontium-90	2.22	2.25	A		-1.3	1.58 - 2.92	0.04	L	Bq/sample
Uranium-234/233	0.28	0.273	A		2.6	0.19 - 0.35	0.01		Bq/sample
Uranium-238	0.29	0.283	A		2.5	0.20 - 0.37	0.01		Bq/sample
Zinc-65	4.25	4.33	A		-1.8	3.03 - 5.63	0.40		Bq/sample

### Flags:

A = Result acceptable  
W = Result acceptable with warning  
N = Result not acceptable  
L = Uncertainty potentially too low  
H = Uncertainty potentially too high  
Q = Participant should evaluate reported value  
QL = Quantitation Limit  
RW = Report Warning  
NR = Not Reported

Bias <= 20%  
20% < Bias <= 30%  
Bias > 30%

### Flag Text

1 - False Positive  
2 - False Negative  
4 - Sensitivity Evaluation  
5 - Total Metal  
6 - Not Evaluated  
7 - DL > CLP Limit  
9 - Check QL  
10 - Check Isomer  
11 - False Positive Test, Value Not Reported  
14 - Solubility Issue  
15 - Refractory  
16 - Reported zero uncertainty  
17 - NOT DETECTED, reported a statistically zero result.  
18 - Sensitivity evaluation, value not reported.

# Mixed Analyte Performance Evaluation Program

## Laboratory Results - Radiological Air Filter

OTLI01

Outreach Technologies, Inc.

Sample ID: MAPEP-05-RdF14

311 N. Aspen

Broken Arrow

OK

74012-

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Americium-241	NR	0.158				0.11 - 0.21			
Cesium-134	2.79	3.85	W		-27.5	2.69 - 5.01	0.09		Bq/sample
Cesium-137	2.71	3.23	A		-16.1	2.26 - 4.20	0.14		Bq/sample
Cobalt-57	9.20	6.20	N		48.4	4.34 - 8.06	0.53		Bq/sample
Cobalt-60	2.87	2.85	A		0.7	1.99 - 3.70	0.11		Bq/sample
Manganese-54	4.26	4.37	A		-2.5	3.06 - 5.68	0.24		Bq/sample
Plutonium-238	NR	0.0969				0.07 - 0.13			
Plutonium-239/240	NR	0.0898				0.06 - 0.12			
Strontium-90	NR	2.25				1.58 - 2.92			
Uranium-234/233	NR	0.273				0.19 - 0.35			
Uranium-238	NR	0.283				0.20 - 0.37			
Zinc-65	4.77	4.33	A		10.2	3.03 - 5.63	0.24		Bq/sample

### Flags:

A = Result acceptable  
W = Result acceptable with warning  
N = Result not acceptable  
L = Uncertainty potentially too low  
H = Uncertainty potentially too high  
Q = Participant should evaluate reported value  
QL = Quantitation Limit  
RW = Report Warning  
NR = Not Reported

Bias <= 20%  
20% < Bias <= 30%  
Bias > 30%

### Flag Text

1 - False Positive  
2 - False Negative  
4 - Sensitivity Evaluation  
5 - Total Metal  
6 - Not Evaluated  
7 - DL > CLP Limit  
9 - Check QL  
10 - Check Isomer  
11 - False Positive Test, Value Not Reported  
14 - Solubility Issue  
15 - Refractory  
16 - Reported zero uncertainty  
17 - NOT DETECTED, reported a statistically zero result.  
18 - Sensitivity evaluation, value not reported.

# Mixed Analyte Performance Evaluation Program

## Laboratory Results - Radiological Air Filter

PBRF01

NASA Plum Brook Reactor Facility Lab  
6100 Columbus Ave  
Sandusky OH 44870

Sample ID: MAPEP-05-RdF14

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Americium-241	NR	0.158				0.11 - 0.21			
Cesium-134	NR	3.85				2.69 - 5.01			
Cesium-137	3.8164	3.23	A		18.2	2.26 - 4.20	0.428		Bq/sample
Cobalt-57	NR	6.20				4.34 - 8.06			
Cobalt-60	4.1453	2.85	N		45.4	1.99 - 3.70	0.381		Bq/sample
Manganese-54	NR	4.37				3.06 - 5.68			
Plutonium-238	NR	0.0969				0.07 - 0.13			
Plutonium-239/240	NR	0.0898				0.06 - 0.12			
Strontium-90	NR	2.25				1.58 - 2.92			
Uranium-234/233	NR	0.273				0.19 - 0.35			
Uranium-238	NR	0.283				0.20 - 0.37			
Zinc-65	NR	4.33				3.03 - 5.63			

### Flags:

A = Result acceptable  
W = Result acceptable with warning  
N = Result not acceptable  
L = Uncertainty potentially too low  
H = Uncertainty potentially too high  
Q = Participant should evaluate reported value  
QL = Quantitation Limit  
RW = Report Warning  
NR = Not Reported

Bias <= 20%  
20% < Bias <= 30%  
Bias > 30%

### Flag Text

1 - False Positive  
2 - False Negative  
4 - Sensitivity Evaluation  
5 - Total Metal  
6 - Not Evaluated  
7 - DL > CLP Limit  
9 - Check QL  
10 - Check Isomer  
11 - False Positive Test, Value Not Reported  
14 - Solubility Issue  
15 - Refractory  
16 - Reported zero uncertainty  
17 - NOT DETECTED, reported a statistically zero result.  
18 - Sensitivity evaluation, value not reported.

# Mixed Analyte Performance Evaluation Program

## Laboratory Results - Radiological Air Filter

QUAN01

STL St. Louis

Sample ID: MAPEP-05-RdF14

13715 Rider Trail North

Earth City

MO

63045-

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Americium-241	0.118	0.158	W		-25.3	0.11 - 0.21	0.007		Bq/sample
Cesium-134	3.26	3.85	A		-15.3	2.69 - 5.01	0.12		Bq/sample
Cesium-137	2.90	3.23	A		-10.2	2.26 - 4.20	0.11		Bq/sample
Cobalt-57	5.42	6.20	A		-12.6	4.34 - 8.06	0.15	L	Bq/sample
Cobalt-60	2.50	2.85	A		-12.3	1.99 - 3.70	0.10		Bq/sample
Manganese-54	4.00	4.37	A		-8.5	3.06 - 5.68	0.16		Bq/sample
Plutonium-238	0.0884	0.0969	A		-8.8	0.07 - 0.13	0.0060		Bq/sample
Plutonium-239/240	0.0828	0.0898	A		-7.8	0.06 - 0.12	0.0057		Bq/sample
Strontium-90	1.44	2.25	N		-36.0	1.58 - 2.92	0.08		Bq/sample
Uranium-234/233	0.263	0.273	A		-3.7	0.19 - 0.35	0.015		Bq/sample
Uranium-238	0.284	0.283	A		0.4	0.20 - 0.37	0.016		Bq/sample
Zinc-65	4.07	4.33	A		-6.0	3.03 - 5.63	0.23		Bq/sample

### Flags:

A = Result acceptable  
 W = Result acceptable with warning  
 N = Result not acceptable  
 L = Uncertainty potentially too low  
 H = Uncertainty potentially too high  
 Q = Participant should evaluate reported value  
 QL = Quantitation Limit  
 RW = Report Warning  
 NR = Not Reported

Bias <= 20%  
 20% < Bias <= 30%  
 Bias > 30%

### Flag Text

1 - False Positive  
 2 - False Negative  
 4 - Sensitivity Evaluation  
 5 - Total Metal  
 6 - Not Evaluated  
 7 - DL > CLP Limit  
 9 - Check QL  
 10 - Check Isomer  
 11 - False Positive Test, Value Not Reported  
 14 - Solubility Issue  
 15 - Refractory  
 16 - Reported zero uncertainty  
 17 - NOT DETECTED, reported a statistically zero result.  
 18 - Sensitivity evaluation, value not reported.

# Mixed Analyte Performance Evaluation Program

## Laboratory Results - Radiological Air Filter

QUAN03

SEVERN TRENT LABORATORIES RICHLAND  
2800 GEORGE WASHINGTON WAY  
RICHLAND WA 99354-

Sample ID: MAPEP-05-RdF14

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Americium-241	0.152	0.158	A		-3.8	0.11 - 0.21	0.0115		Bq/sample
Cesium-134	3.16	3.85	A		-17.9	2.69 - 5.01	0.236		Bq/sample
Cesium-137	3.18	3.23	A		-1.5	2.26 - 4.20	0.203		Bq/sample
Cobalt-57	6.22	6.20	A		0.3	4.34 - 8.06	0.462		Bq/sample
Cobalt-60	3.01	2.85	A		5.6	1.99 - 3.70	0.234		Bq/sample
Manganese-54	3.91	4.37	A		-10.5	3.06 - 5.68	0.307		Bq/sample
Plutonium-238	0.0987	0.0969	A		1.9	0.07 - 0.13	0.0084		Bq/sample
Plutonium-239/240	0.0893	0.0898	A		-0.6	0.06 - 0.12	0.00769		Bq/sample
Strontium-90	2.24	2.25	A		-0.4	1.58 - 2.92	0.174		Bq/sample
Uranium-234/233	0.259	0.273	A		-5.1	0.19 - 0.35	0.0232		Bq/sample
Uranium-238	0.296	0.283	A		4.6	0.20 - 0.37	0.0262		Bq/sample
Zinc-65	4.24	4.33	A		-2.1	3.03 - 5.63	0.325		Bq/sample

### Flags:

A = Result acceptable  
W = Result acceptable with warning  
N = Result not acceptable  
L = Uncertainty potentially too low  
H = Uncertainty potentially too high  
Q = Participant should evaluate reported value  
QL = Quantitation Limit  
RW = Report Warning  
NR = Not Reported

Bias <= 20%  
20% < Bias <= 30%  
Bias > 30%

### Flag Text

1 - False Positive  
2 - False Negative  
4 - Sensitivity Evaluation  
5 - Total Metal  
6 - Not Evaluated  
7 - DL > CLP Limit  
9 - Check QL  
10 - Check Isomer  
11 - False Positive Test, Value Not Reported  
14 - Solubility Issue  
15 - Refractory  
16 - Reported zero uncertainty  
17 - NOT DETECTED, reported a statistically zero result.  
18 - Sensitivity evaluation, value not reported.

# Mixed Analyte Performance Evaluation Program

## Laboratory Results - Radiological Air Filter

RECC01

GEL Laboratories of Ohio, LLC

Sample ID: MAPEP-05-RdF14

6954 Cornell Road

Cincinnati

OH

45242-3025

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Americium-241	.144	0.158	A		-8.9	0.11 - 0.21	.024		Bq/sample
Cesium-134	2.92	3.85	W		-24.2	2.69 - 5.01	.12		Bq/sample
Cesium-137	2.82	3.23	A		-12.7	2.26 - 4.20	.236		Bq/sample
Cobalt-57	6.32	6.20	A		1.9	4.34 - 8.06	.279		Bq/sample
Cobalt-60	2.98	2.85	A		4.6	1.99 - 3.70	.139		Bq/sample
Manganese-54	4.55	4.37	A		4.1	3.06 - 5.68	.321		Bq/sample
Plutonium-238	.0981	0.0969	A		1.2	0.07 - 0.13	.00938		Bq/sample
Plutonium-239/240	.1	0.0898	A		11.4	0.06 - 0.12	.00938		Bq/sample
Strontium-90	2.02	2.25	A		-10.2	1.58 - 2.92	.249		Bq/sample
Uranium-234/233	.277	0.273	A		1.5	0.19 - 0.35	.023		Bq/sample
Uranium-238	.281	0.283	A		-0.7	0.20 - 0.37	.023		Bq/sample
Zinc-65	5.0	4.33	A		15.5	3.03 - 5.63	.447		Bq/sample

### Flags:

A = Result acceptable

W = Result acceptable with warning

N = Result not acceptable

L = Uncertainty potentially too low

H = Uncertainty potentially too high

Q = Participant should evaluate reported value

QL = Quantitation Limit

RW = Report Warning

NR = Not Reported

Bias <= 20%

20% < Bias <= 30%

Bias > 30%

### Flag Text

1 - False Positive

2 - False Negative

4 - Sensitivity Evaluation

5 - Total Metal

6 - Not Evaluated

7 - DL > CLP Limit

9 - Check QL

10 - Check Isomer

11 - False Positive Test, Value Not Reported

14 - Solubility Issue

15 - Refractory

16 - Reported zero uncertainty

17 - NOT DETECTED, reported a statistically zero result.

18 - Sensitivity evaluation, value not reported.

# Mixed Analyte Performance Evaluation Program

## Laboratory Results - Radiological Air Filter

RMCL99

Royal Scientific Society - Radiation Measurements Lab

Sample ID: MAPEP-05-RdF14

Ahmad Al-Tarawneh Str.

Al-Jubaiha Amman 11941

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Americium-241	NR	0.158				0.11 - 0.21			
Cesium-134	3.95	3.85	A		2.6	2.69 - 5.01	0.15		Bq/sample
Cesium-137	3.14	3.23	A		-2.8	2.26 - 4.20	0.10		Bq/sample
Cobalt-57	6.26	6.20	A		1.0	4.34 - 8.06	0.20		Bq/sample
Cobalt-60	2.94	2.85	A		3.2	1.99 - 3.70	0.14		Bq/sample
Manganese-54	4.26	4.37	A		-2.5	3.06 - 5.68	0.14		Bq/sample
Plutonium-238	NR	0.0969				0.07 - 0.13			
Plutonium-239/240	NR	0.0898				0.06 - 0.12			
Strontium-90	NR	2.25				1.58 - 2.92			
Uranium-234/233	NR	0.273				0.19 - 0.35			
Uranium-238	NR	0.283				0.20 - 0.37			
Zinc-65	4.52	4.33	A		4.4	3.03 - 5.63	0.19		Bq/sample

### Flags:

A = Result acceptable  
 W = Result acceptable with warning  
 N = Result not acceptable  
 L = Uncertainty potentially too low  
 H = Uncertainty potentially too high  
 Q = Participant should evaluate reported value  
 QL = Quantitation Limit  
 RW = Report Warning  
 NR = Not Reported

Bias <= 20%  
 20% < Bias <= 30%  
 Bias > 30%

### Flag Text

1 - False Positive  
 2 - False Negative  
 4 - Sensitivity Evaluation  
 5 - Total Metal  
 6 - Not Evaluated  
 7 - DL > CLP Limit  
 9 - Check QL  
 10 - Check Isomer  
 11 - False Positive Test, Value Not Reported  
 14 - Solubility Issue  
 15 - Refractory  
 16 - Reported zero uncertainty  
 17 - NOT DETECTED, reported a statistically zero result.  
 18 - Sensitivity evaluation, value not reported.

# Mixed Analyte Performance Evaluation Program

## Laboratory Results - Radiological Air Filter

RPSC01

Radiation Protection Service

Sample ID: MAPEP-05-RdF14

Ontario Ministry of Labour

Weston

Ontario

M9P 3T1

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Americium-241	NR	0.158				0.11 - 0.21			
Cesium-134	3.63	3.85	A		-5.7	2.69 - 5.01	0.30		Bq/sample
Cesium-137	3.05	3.23	A		-5.6	2.26 - 4.20	0.24		Bq/sample
Cobalt-57	5.84	6.20	A		-5.8	4.34 - 8.06	0.47		Bq/sample
Cobalt-60	2.78	2.85	A		-2.5	1.99 - 3.70	0.22		Bq/sample
Manganese-54	4.14	4.37	A		-5.3	3.06 - 5.68	0.33		Bq/sample
Plutonium-238	NR	0.0969				0.07 - 0.13			
Plutonium-239/240	NR	0.0898				0.06 - 0.12			
Strontium-90	NR	2.25				1.58 - 2.92			
Uranium-234/233	NR	0.273				0.19 - 0.35			
Uranium-238	NR	0.283				0.20 - 0.37			
Zinc-65	4.21	4.33	A		-2.8	3.03 - 5.63	0.34		Bq/sample

### Flags:

A = Result acceptable  
 W = Result acceptable with warning  
 N = Result not acceptable  
 L = Uncertainty potentially too low  
 H = Uncertainty potentially too high  
 Q = Participant should evaluate reported value  
 QL = Quantitation Limit  
 RW = Report Warning  
 NR = Not Reported

Bias <= 20%  
 20% < Bias <= 30%  
 Bias > 30%

### Flag Text

1 - False Positive  
 2 - False Negative  
 4 - Sensitivity Evaluation  
 5 - Total Metal  
 6 - Not Evaluated  
 7 - DL > CLP Limit  
 9 - Check QL  
 10 - Check Isomer  
 11 - False Positive Test, Value Not Reported  
 14 - Solubility Issue  
 15 - Refractory  
 16 - Reported zero uncertainty  
 17 - NOT DETECTED, reported a statistically zero result.  
 18 - Sensitivity evaluation, value not reported.

# Mixed Analyte Performance Evaluation Program

## Laboratory Results - Radiological Air Filter

RSAL01

RSA Laboratories, Inc.

Sample ID: MAPEP-05-RdF14

PO Box 61

Hebron

CT

06248

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Americium-241	.16	0.158	A		1.3	0.11 - 0.21	.03		Bq/sample
Cesium-134	3.92	3.85	A		1.8	2.69 - 5.01	.52		Bq/sample
Cesium-137	2.80	3.23	A		-13.3	2.26 - 4.20	.71	H	Bq/sample
Cobalt-57	5.58	6.20	A		-10.0	4.34 - 8.06	.27		Bq/sample
Cobalt-60	2.43	2.85	A		-14.7	1.99 - 3.70	.39		Bq/sample
Manganese-54	4.28	4.37	A		-2.1	3.06 - 5.68	.53		Bq/sample
Plutonium-238	NR	0.0969				0.07 - 0.13			
Plutonium-239/240	NR	0.0898				0.06 - 0.12			
Potassium-40	6.91						3.51		Bq/sample
Strontium-90	NR	2.25				1.58 - 2.92			
Uranium-234/233	.31	0.273	A		13.6	0.19 - 0.35	.03		Bq/sample
Uranium-238	.32	0.283	A		13.1	0.20 - 0.37	.03		Bq/sample
Zinc-65	3.56	4.33	A		-17.8	3.03 - 5.63	1.20	H	Bq/sample

### Flags:

A = Result acceptable

W = Result acceptable with warning

N = Result not acceptable

L = Uncertainty potentially too low

H = Uncertainty potentially too high

Q = Participant should evaluate reported value

QL = Quantitation Limit

RW = Report Warning

NR = Not Reported

Bias <= 20%

20% < Bias <= 30%

Bias > 30%

### Flag Text

1 - False Positive

2 - False Negative

4 - Sensitivity Evaluation

5 - Total Metal

6 - Not Evaluated

7 - DL > CLP Limit

9 - Check QL

10 - Check Isomer

11 - False Positive Test, Value Not Reported

14 - Solubility Issue

15 - Refractory

16 - Reported zero uncertainty

17 - NOT DETECTED, reported a statistically zero result.

18 - Sensitivity evaluation, value not reported.

# Mixed Analyte Performance Evaluation Program

## Laboratory Results - Radiological Air Filter

SCAL01

Sanford Cohen and Associates, Inc.

Sample ID: MAPEP-05-RdF14

1000 Monticello Court

Montgomery AL 36117-

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Americium-241	0.137	0.158	A		-13.3	0.11 - 0.21	0.016		Bq/sample
Cesium-134	2.16	3.85	N		-43.9	2.69 - 5.01	0.197		Bq/sample
Cesium-137	1.95	3.23	N		-39.6	2.26 - 4.20	0.197		Bq/sample
Cobalt-57	5.08	6.20	A		-18.1	4.34 - 8.06	0.346		Bq/sample
Cobalt-60	2.38	2.85	A		-16.5	1.99 - 3.70	0.150		Bq/sample
Manganese-54	3.80	4.37	A		-13.0	3.06 - 5.68	0.313		Bq/sample
Plutonium-238	0.085	0.0969	A		-12.3	0.07 - 0.13	0.011		Bq/sample
Plutonium-239/240	0.082	0.0898	A		-8.7	0.06 - 0.12	0.011		Bq/sample
Strontium-90	1.88	2.25	A		-16.4	1.58 - 2.92	0.096		Bq/sample
Uranium-234/233	0.240	0.273	A		-12.1	0.19 - 0.35	0.028		Bq/sample
Uranium-238	0.261	0.283	A		-7.8	0.20 - 0.37	0.030		Bq/sample
Zinc-65	4.16	4.33	A		-3.9	3.03 - 5.63	0.283		Bq/sample

### Flags:

A = Result acceptable  
 W = Result acceptable with warning  
 N = Result not acceptable  
 L = Uncertainty potentially too low  
 H = Uncertainty potentially too high  
 Q = Participant should evaluate reported value  
 QL = Quantitation Limit  
 RW = Report Warning  
 NR = Not Reported

Bias <= 20%  
 20% < Bias <= 30%  
 Bias > 30%

### Flag Text

1 - False Positive  
 2 - False Negative  
 4 - Sensitivity Evaluation  
 5 - Total Metal  
 6 - Not Evaluated  
 7 - DL > CLP Limit  
 9 - Check QL  
 10 - Check Isomer  
 11 - False Positive Test, Value Not Reported  
 14 - Solubility Issue  
 15 - Refractory  
 16 - Reported zero uncertainty  
 17 - NOT DETECTED, reported a statistically zero result.  
 18 - Sensitivity evaluation, value not reported.

# Mixed Analyte Performance Evaluation Program

## Laboratory Results - Radiological Air Filter

SEML01

SRS Environmental Monitoring Laboratory

Sample ID: MAPEP-05-RdF14

Bldg 735-B

Aiken

SC

29808

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Americium-241	0.146	0.158	A		-7.6	0.11 - 0.21	0.010		Bq/sample
Cesium-134	3.39	3.85	A		-11.9	2.69 - 5.01	0.11		Bq/sample
Cesium-137	2.89	3.23	A		-10.5	2.26 - 4.20	0.155		Bq/sample
Cobalt-57	5.55	6.20	A		-10.5	4.34 - 8.06	0.18		Bq/sample
Cobalt-60	2.70	2.85	A		-5.3	1.99 - 3.70	0.11		Bq/sample
Manganese-54	4.12	4.37	A		-5.7	3.06 - 5.68	0.19		Bq/sample
Plutonium-238	0.106	0.0969	A		9.4	0.07 - 0.13	0.0074		Bq/sample
Plutonium-239/240	0.091	0.0898	A		1.3	0.06 - 0.12	0.006		Bq/sample
Strontium-90	1.87	2.25	A		-16.9	1.58 - 2.92	0.076		Bq/sample
Uranium-234/233	0.309	0.273	A		13.2	0.19 - 0.35	0.022		Bq/sample
Uranium-238	0.325	0.283	A		14.8	0.20 - 0.37	0.023		Bq/sample
Zinc-65	4.28	4.33	A		-1.2	3.03 - 5.63	0.28		Bq/sample

### Flags:

A = Result acceptable  
 W = Result acceptable with warning  
 N = Result not acceptable  
 L = Uncertainty potentially too low  
 H = Uncertainty potentially too high  
 Q = Participant should evaluate reported value  
 QL = Quantitation Limit  
 RW = Report Warning  
 NR = Not Reported

Bias <= 20%  
 20% < Bias <= 30%  
 Bias > 30%

### Flag Text

1 - False Positive  
 2 - False Negative  
 4 - Sensitivity Evaluation  
 5 - Total Metal  
 6 - Not Evaluated  
 7 - DL > CLP Limit  
 9 - Check QL  
 10 - Check Isomer  
 11 - False Positive Test, Value Not Reported  
 14 - Solubility Issue  
 15 - Refractory  
 16 - Reported zero uncertainty  
 17 - NOT DETECTED, reported a statistically zero result.  
 18 - Sensitivity evaluation, value not reported.

# Mixed Analyte Performance Evaluation Program

## Laboratory Results - Radiological Air Filter

SLDL01

Scientific Laboratory Division

Sample ID: MAPEP-05-RdF14

PO Box 4700

Albuquerque

NM

87196-4700

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Americium-241	0.142	0.158	A		-10.1	0.11 - 0.21	0.009		Bq/sample
Cesium-134	3.43	3.85	A		-10.9	2.69 - 5.01	0.36		Bq/sample
Cesium-137	3.17	3.23	A		-1.9	2.26 - 4.20	0.34		Bq/sample
Cobalt-57	6.13	6.20	A		-1.1	4.34 - 8.06	0.65		Bq/sample
Cobalt-60	2.88	2.85	A		1.1	1.99 - 3.70	0.31		Bq/sample
Manganese-54	4.58	4.37	A		4.8	3.06 - 5.68	0.48		Bq/sample
Plutonium-238	0.091	0.0969	A		-6.1	0.07 - 0.13	0.006		Bq/sample
Plutonium-239/240	0.082	0.0898	A		-8.7	0.06 - 0.12	0.005		Bq/sample
Strontium-90	NR	2.25				1.58 - 2.92			
Uranium-234/233	0.267	0.273	A		-2.2	0.19 - 0.35	0.015		Bq/sample
Uranium-238	0.274	0.283	A		-3.2	0.20 - 0.37	0.015		Bq/sample
Zinc-65	4.81	4.33	A		11.1	3.03 - 5.63	0.51		Bq/sample

### Flags:

A = Result acceptable  
 W = Result acceptable with warning  
 N = Result not acceptable  
 L = Uncertainty potentially too low  
 H = Uncertainty potentially too high  
 Q = Participant should evaluate reported value  
 QL = Quantitation Limit  
 RW = Report Warning  
 NR = Not Reported

Bias <= 20%  
 20% < Bias <= 30%  
 Bias > 30%

### Flag Text

1 - False Positive  
 2 - False Negative  
 4 - Sensitivity Evaluation  
 5 - Total Metal  
 6 - Not Evaluated  
 7 - DL > CLP Limit  
 9 - Check QL  
 10 - Check Isomer  
 11 - False Positive Test, Value Not Reported  
 14 - Solubility Issue  
 15 - Refractory  
 16 - Reported zero uncertainty  
 17 - NOT DETECTED, reported a statistically zero result.  
 18 - Sensitivity evaluation, value not reported.

# Mixed Analyte Performance Evaluation Program

## Laboratory Results - Radiological Air Filter

SOUT01

Southwest Research Institute

Sample ID: MAPEP-05-RdF14

6220 Culebra Rd.

San Antonio

TX

78228-0510

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Uranium-Total	23.5	23.0	A		2.2		1.22		(ug/sample)
Uranium-235	.181	0.165	A		9.7		.0094		(ug/sample)
Uranium-238	23.4	22.8	A		2.6		1.22		(ug/sample)
Americium-241	0.154	0.158	A		-2.5	0.11 - 0.21	0.0136		Bq/sample
Cesium-134	3.70	3.85	A		-3.9	2.69 - 5.01	0.306		Bq/sample
Cesium-137	3.03	3.23	A		-6.2	2.26 - 4.20	0.350		Bq/sample
Cobalt-57	6.34	6.20	A		2.3	4.34 - 8.06	0.503		Bq/sample
Cobalt-60	2.96	2.85	A		3.9	1.99 - 3.70	0.267		Bq/sample
Manganese-54	4.57	4.37	A		4.6	3.06 - 5.68	0.535		Bq/sample
Plutonium-238	0.0890	0.0969	A		-8.2	0.07 - 0.13	0.0105		Bq/sample
Plutonium-239/240	0.106	0.0898	A		18.0	0.06 - 0.12	0.0116		Bq/sample
Strontium-90	2.40	2.25	A		6.7	1.58 - 2.92	0.215		Bq/sample
Uranium-234/233	0.267	0.273	A		-2.2	0.19 - 0.35	0.0261		Bq/sample
Uranium-238	0.275	0.283	A		-2.8	0.20 - 0.37	0.0267		Bq/sample
Zinc-65	5.04	4.33	A		16.4	3.03 - 5.63	0.756		Bq/sample

### Flags:

A = Result acceptable  
W = Result acceptable with warning  
N = Result not acceptable  
L = Uncertainty potentially too low  
H = Uncertainty potentially too high  
Q = Participant should evaluate reported value  
QL = Quantitation Limit  
RW = Report Warning  
NR = Not Reported

Bias <= 20%  
20% < Bias <= 30%  
Bias > 30%

### Flag Text

1 - False Positive  
2 - False Negative  
4 - Sensitivity Evaluation  
5 - Total Metal  
6 - Not Evaluated  
7 - DL > CLP Limit  
9 - Check QL  
10 - Check Isomer  
11 - False Positive Test, Value Not Reported  
14 - Solubility Issue  
15 - Refractory  
16 - Reported zero uncertainty  
17 - NOT DETECTED, reported a statistically zero result.  
18 - Sensitivity evaluation, value not reported.

# Mixed Analyte Performance Evaluation Program

## Laboratory Results - Radiological Air Filter

SRPD01

Sandia National Laboratories, Radiation Protection Sam  
 PO Box 5800, MS0305  
 Albuquerque NM 87185-0305

Sample ID: MAPEP-05-RdF14

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Uranium-Total	23.17	23.0	A		0.7		2.4		(ug/sample)
Uranium-235	0.165	0.165	A		0.0		0.020		(ug/sample)
Uranium-238	23.0	22.8	A		0.9		2.38		(ug/sample)
Americium-241	NR	0.158				0.11 - 0.21			
Cesium-134	NR	3.85				2.69 - 5.01			
Cesium-137	2.84	3.23	A		-12.1	2.26 - 4.20	0.39		Bq/sample
Cobalt-57	5.57	6.20	A		-10.2	4.34 - 8.06	0.71		Bq/sample
Cobalt-60	2.51	2.85	A		-11.9	1.99 - 3.70	0.35		Bq/sample
Manganese-54	4.17	4.37	A		-4.6	3.06 - 5.68	0.55		Bq/sample
Plutonium-238	NR	0.0969				0.07 - 0.13			
Plutonium-239/240	NR	0.0898				0.06 - 0.12			
Strontium-90	NR	2.25				1.58 - 2.92			
Uranium-234/233	NR	0.273				0.19 - 0.35			
Uranium-238	NR	0.283				0.20 - 0.37			
Zinc-65	4.30	4.33	A		-0.7	3.03 - 5.63	0.64		Bq/sample

**Flags:**

A = Result acceptable  
 W = Result acceptable with warning  
 N = Result not acceptable  
 L = Uncertainty potentially too low  
 H = Uncertainty potentially too high  
 Q = Participant should evaluate reported value  
 QL = Quantitation Limit  
 RW = Report Warning  
 NR = Not Reported

Bias <= 20%  
 20% < Bias <= 30%  
 Bias > 30%

**Flag Text**

1 - False Positive  
 2 - False Negative  
 4 - Sensitivity Evaluation  
 5 - Total Metal  
 6 - Not Evaluated  
 7 - DL > CLP Limit  
 9 - Check QL  
 10 - Check Isomer  
 11 - False Positive Test, Value Not Reported  
 14 - Solubility Issue  
 15 - Refractory  
 16 - Reported zero uncertainty  
 17 - NOT DETECTED, reported a statistically zero result.  
 18 - Sensitivity evaluation, value not reported.

# Mixed Analyte Performance Evaluation Program

## Laboratory Results - Radiological Air Filter

TDHL01

Texas Department of State Health Services Laboratory  
1100 W 49th Street  
Austin TX 78756

Sample ID: MAPEP-05-RdF14

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Americium-241	0.164	0.158	A		3.8	0.11 - 0.21	0.005		Bq/sample
Cesium-134	3.12	3.85	A		-19.0	2.69 - 5.01	0.05	L	Bq/sample
Cesium-137	2.79	3.23	A		-13.6	2.26 - 4.20	0.07	L	Bq/sample
Cobalt-57	5.37	6.20	A		-13.4	4.34 - 8.06	0.11	L	Bq/sample
Cobalt-60	2.65	2.85	A		-7.0	1.99 - 3.70	0.04	L	Bq/sample
Manganese-54	4.07	4.37	A		-6.9	3.06 - 5.68	0.11	L	Bq/sample
Plutonium-238	0.091	0.0969	A		-6.1	0.07 - 0.13	0.004		Bq/sample
Plutonium-239/240	0.086	0.0898	A		-4.2	0.06 - 0.12	0.003		Bq/sample
Strontium-90	1.11	2.25	N		-50.7	1.58 - 2.92	0.06		Bq/sample
Uranium-234/233	0.290	0.273	A		6.2	0.19 - 0.35	0.012		Bq/sample
Uranium-238	0.295	0.283	A		4.2	0.20 - 0.37	0.012		Bq/sample
Zinc-65	4.48	4.33	A		3.5	3.03 - 5.63	0.15		Bq/sample

### Flags:

A = Result acceptable  
W = Result acceptable with warning  
N = Result not acceptable  
L = Uncertainty potentially too low  
H = Uncertainty potentially too high  
Q = Participant should evaluate reported value  
QL = Quantitation Limit  
RW = Report Warning  
NR = Not Reported

Bias <= 20%  
20% < Bias <= 30%  
Bias > 30%

### Flag Text

1 - False Positive  
2 - False Negative  
4 - Sensitivity Evaluation  
5 - Total Metal  
6 - Not Evaluated  
7 - DL > CLP Limit  
9 - Check QL  
10 - Check Isomer  
11 - False Positive Test, Value Not Reported  
14 - Solubility Issue  
15 - Refractory  
16 - Reported zero uncertainty  
17 - NOT DETECTED, reported a statistically zero result.  
18 - Sensitivity evaluation, value not reported.

# Mixed Analyte Performance Evaluation Program

## Laboratory Results - Radiological Air Filter

TELE01

TELEDYNE BROWN ENGINEERING - ENVIRONMENT

Sample ID: MAPEP-05-RdF14

2508 Quality Lane

Knoxville

TN

37931-6819

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Americium-241	1.55E-01	0.158	A		-1.9	0.11 - 0.21	4.01E-02	H	Bq/sample
Cesium-134	4.11E+00	3.85	A		6.8	2.69 - 5.01	3.32E-01		Bq/sample
Cesium-137	3.16E+00	3.23	A		-2.2	2.26 - 4.20	4.50E-01		Bq/sample
Cobalt-57	6.14E+00	6.20	A		-1.0	4.34 - 8.06	3.28E-01		Bq/sample
Cobalt-60	2.86E+00	2.85	A		0.4	1.99 - 3.70	3.23E-01		Bq/sample
Manganese-54	4.54E+00	4.37	A		3.9	3.06 - 5.68	5.01E-01		Bq/sample
Plutonium-238	1.15E-01	0.0969	A		18.7	0.07 - 0.13	3.15E-02	H	Bq/sample
Plutonium-239/240	1.02E-01	0.0898	A		13.6	0.06 - 0.12	2.89E-02	H	Bq/sample
Strontium-90	2.12E+00	2.25	A		-5.8	1.58 - 2.92	5.36E-02	L	Bq/sample
Uranium-234/233	2.94E-01	0.273	A		7.7	0.19 - 0.35	4.62E-02		Bq/sample
Uranium-238	2.93E-01	0.283	A		3.5	0.20 - 0.37	4.50E-02		Bq/sample
Zinc-65	4.28E+00	4.33	A		-1.2	3.03 - 5.63	9.00E-01	H	Bq/sample

### Flags:

A = Result acceptable  
W = Result acceptable with warning  
N = Result not acceptable  
L = Uncertainty potentially too low  
H = Uncertainty potentially too high  
Q = Participant should evaluate reported value  
QL = Quantitation Limit  
RW = Report Warning  
NR = Not Reported

Bias <= 20%  
20% < Bias <= 30%  
Bias > 30%

### Flag Text

1 - False Positive  
2 - False Negative  
4 - Sensitivity Evaluation  
5 - Total Metal  
6 - Not Evaluated  
7 - DL > CLP Limit  
9 - Check QL  
10 - Check Isomer  
11 - False Positive Test, Value Not Reported  
14 - Solubility Issue  
15 - Refractory  
16 - Reported zero uncertainty  
17 - NOT DETECTED, reported a statistically zero result.  
18 - Sensitivity evaluation, value not reported.

# Mixed Analyte Performance Evaluation Program

## Laboratory Results - Radiological Air Filter

TELE02

Environmental, Inc., Midwest Lab

Sample ID: MAPEP-05-RdF14

700 Landwehr Road

Northbrook IL 60062-

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Americium-241	0.14	0.158	A		-11.4	0.11 - 0.21	0.03	H	Bq/sample
Cesium-134	3.67	3.85	A		-4.7	2.69 - 5.01	0.12		Bq/sample
Cesium-137	2.93	3.23	A		-9.3	2.26 - 4.20	0.23		Bq/sample
Cobalt-57	5.81	6.20	A		-6.3	4.34 - 8.06	0.17	L	Bq/sample
Cobalt-60	2.79	2.85	A		-2.1	1.99 - 3.70	0.14		Bq/sample
Manganese-54	4.11	4.37	A		-5.9	3.06 - 5.68	0.26		Bq/sample
Plutonium-238	0.11	0.0969	A		13.5	0.07 - 0.13	0.02		Bq/sample
Plutonium-239/240	0.10	0.0898	A		11.4	0.06 - 0.12	0.01		Bq/sample
Strontium-90	2.25	2.25	A		0.0	1.58 - 2.92	0.29		Bq/sample
Uranium-234/233	0.28	0.273	A		2.6	0.19 - 0.35	0.02		Bq/sample
Uranium-238	0.28	0.283	A		-1.1	0.20 - 0.37	0.02		Bq/sample
Zinc-65	3.98	4.33	A		-8.1	3.03 - 5.63	0.33		Bq/sample

### Flags:

A = Result acceptable  
W = Result acceptable with warning  
N = Result not acceptable  
L = Uncertainty potentially too low  
H = Uncertainty potentially too high  
Q = Participant should evaluate reported value  
QL = Quantitation Limit  
RW = Report Warning  
NR = Not Reported

Bias <= 20%  
20% < Bias <= 30%  
Bias > 30%

### Flag Text

1 - False Positive  
2 - False Negative  
4 - Sensitivity Evaluation  
5 - Total Metal  
6 - Not Evaluated  
7 - DL > CLP Limit  
9 - Check QL  
10 - Check Isomer  
11 - False Positive Test, Value Not Reported  
14 - Solubility Issue  
15 - Refractory  
16 - Reported zero uncertainty  
17 - NOT DETECTED, reported a statistically zero result.  
18 - Sensitivity evaluation, value not reported.

# Mixed Analyte Performance Evaluation Program

## Laboratory Results - Radiological Air Filter

TMAE01

Eberline Services, Inc.  
7021 Pan American Freeway N.E.  
Albuquerque NM 87109-

Sample ID: MAPEP-05-RdF14

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Americium-241	0.147	0.158	A		-7.0	0.11 - 0.21	0.041	H	Bq/sample
Cesium-134	3.26	3.85	A		-15.3	2.69 - 5.01	0.628		Bq/sample
Cesium-137	3.10	3.23	A		-4.0	2.26 - 4.20	0.749	H	Bq/sample
Cobalt-57	6.53	6.20	A		5.3	4.34 - 8.06	1.09		Bq/sample
Cobalt-60	2.75	2.85	A		-3.5	1.99 - 3.70	0.606	H	Bq/sample
Manganese-54	4.50	4.37	A		3.0	3.06 - 5.68	0.959	H	Bq/sample
Plutonium-238	0.086	0.0969	A		-11.2	0.07 - 0.13	0.034	H	Bq/sample
Plutonium-239/240	0.087	0.0898	A		-3.1	0.06 - 0.12	0.034	H	Bq/sample
Strontium-90	NR	2.25				1.58 - 2.92			
Uranium-234/233	0.258	0.273	A		-5.5	0.19 - 0.35	0.061	H	Bq/sample
Uranium-238	0.292	0.283	A		3.2	0.20 - 0.37	0.065	H	Bq/sample
Zinc-65	3.80	4.33	A		-12.2	3.03 - 5.63	1.30	H	Bq/sample

### Flags:

A = Result acceptable  
W = Result acceptable with warning  
N = Result not acceptable  
L = Uncertainty potentially too low  
H = Uncertainty potentially too high  
Q = Participant should evaluate reported value  
QL = Quantitation Limit  
RW = Report Warning  
NR = Not Reported

Bias <= 20%  
20% < Bias <= 30%  
Bias > 30%

### Flag Text

1 - False Positive  
2 - False Negative  
4 - Sensitivity Evaluation  
5 - Total Metal  
6 - Not Evaluated  
7 - DL > CLP Limit  
9 - Check QL  
10 - Check Isomer  
11 - False Positive Test, Value Not Reported  
14 - Solubility Issue  
15 - Refractory  
16 - Reported zero uncertainty  
17 - NOT DETECTED, reported a statistically zero result.  
18 - Sensitivity evaluation, value not reported.

# Mixed Analyte Performance Evaluation Program

## Laboratory Results - Radiological Air Filter

TMA001

EBERLINE SERVICES OAK RIDGE LABORATORY

Sample ID: MAPEP-05-RdF14

601 SCARBORO RD

OAK RIDGE TN 37830-

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Americium-241	0.149	0.158	A		-5.7	0.11 - 0.21	0.032	H	Bq/sample
Cesium-134	3.63	3.85	A		-5.7	2.69 - 5.01	0.326		Bq/sample
Cesium-137	3.327	3.23	A		3.0	2.26 - 4.20	0.285		Bq/sample
Cobalt-57	7.10	6.20	A		14.5	4.34 - 8.06	0.373		Bq/sample
Cobalt-60	2.944	2.85	A		3.3	1.99 - 3.70	0.258		Bq/sample
Manganese-54	4.564	4.37	A		4.4	3.06 - 5.68	0.496		Bq/sample
Plutonium-238	0.127	0.0969	N		31.1	0.07 - 0.13	0.023		Bq/sample
Plutonium-239/240	0.169	0.0898	N		88.2	0.06 - 0.12	0.027		Bq/sample
Strontium-90	2.509	2.25	A		11.5	1.58 - 2.92	0.053	L	Bq/sample
Uranium-234/233	0.331	0.273	W		21.2	0.19 - 0.35	0.035		Bq/sample
Uranium-238	0.343	0.283	W		21.2	0.20 - 0.37	0.035		Bq/sample
Zinc-65	4.935	4.33	A		14.0	3.03 - 5.63	0.404		Bq/sample

### Flags:

A = Result acceptable  
W = Result acceptable with warning  
N = Result not acceptable  
L = Uncertainty potentially too low  
H = Uncertainty potentially too high  
Q = Participant should evaluate reported value  
QL = Quantitation Limit  
RW = Report Warning  
NR = Not Reported

Bias <= 20%  
20% < Bias <= 30%  
Bias > 30%

### Flag Text

1 - False Positive  
2 - False Negative  
4 - Sensitivity Evaluation  
5 - Total Metal  
6 - Not Evaluated  
7 - DL > CLP Limit  
9 - Check QL  
10 - Check Isomer  
11 - False Positive Test, Value Not Reported  
14 - Solubility Issue  
15 - Refractory  
16 - Reported zero uncertainty  
17 - NOT DETECTED, reported a statistically zero result.  
18 - Sensitivity evaluation, value not reported.

# Mixed Analyte Performance Evaluation Program

## Laboratory Results - Radiological Air Filter

TMAR01

Eberline Services

Sample ID: MAPEP-05-RdF14

2030 Wright Ave

Richmond

CA

94804-0040

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Americium-241	0.152	0.158	A		-3.8	0.11 - 0.21	0.007		Bq/sample
Cesium-134	4.42	3.85	A		14.8	2.69 - 5.01	0.356		Bq/sample
Cesium-137	3.39	3.23	A		5.0	2.26 - 4.20	0.266		Bq/sample
Cobalt-57	7.02	6.20	A		13.2	4.34 - 8.06	0.529		Bq/sample
Cobalt-60	2.86	2.85	A		0.4	1.99 - 3.70	0.231		Bq/sample
Manganese-54	4.57	4.37	A		4.6	3.06 - 5.68	0.356		Bq/sample
Plutonium-238	0.031	0.0969	N		-68.0	0.07 - 0.13	0.003		Bq/sample
Plutonium-239/240	0.028	0.0898	N		-68.8	0.06 - 0.12	0.003		Bq/sample
Strontium-90	2.28	2.25	A		1.3	1.58 - 2.92	0.129		Bq/sample
Uranium-234/233	0.273	0.273	A		0.0	0.19 - 0.35	0.012		Bq/sample
Uranium-238	0.281	0.283	A		-0.7	0.20 - 0.37	0.012		Bq/sample
Zinc-65	4.81	4.33	A		11.1	3.03 - 5.63	0.409		Bq/sample

### Flags:

A = Result acceptable  
W = Result acceptable with warning  
N = Result not acceptable  
L = Uncertainty potentially too low  
H = Uncertainty potentially too high  
Q = Participant should evaluate reported value  
QL = Quantitation Limit  
RW = Report Warning  
NR = Not Reported

Bias <= 20%  
20% < Bias <= 30%  
Bias > 30%

### Flag Text

1 - False Positive  
2 - False Negative  
4 - Sensitivity Evaluation  
5 - Total Metal  
6 - Not Evaluated  
7 - DL > CLP Limit  
9 - Check QL  
10 - Check Isomer  
11 - False Positive Test, Value Not Reported  
14 - Solubility Issue  
15 - Refractory  
16 - Reported zero uncertainty  
17 - NOT DETECTED, reported a statistically zero result.  
18 - Sensitivity evaluation, value not reported.

# Mixed Analyte Performance Evaluation Program

## Laboratory Results - Radiological Air Filter

WEST03

Waste Sampling and Characterization Facility

Sample ID: MAPEP-05-RdF14

PO Box 1000, S3-30

Richland WA 99352

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Americium-241	0.168	0.158	A		6.3	0.11 - 0.21	0.023		Bq/sample
Cesium-134	2.85	3.85	W		-26.0	2.69 - 5.01	0.13		Bq/sample
Cesium-137	3.21	3.23	A		-0.6	2.26 - 4.20	0.34		Bq/sample
Cobalt-57	6.06	6.20	A		-2.3	4.34 - 8.06	0.29		Bq/sample
Cobalt-60	2.85	2.85	A		0.0	1.99 - 3.70	0.14		Bq/sample
Manganese-54	4.66	4.37	A		6.6	3.06 - 5.68	0.47		Bq/sample
Plutonium-238	0.108	0.0969	A		11.5	0.07 - 0.13	0.016		Bq/sample
Plutonium-239/240	0.100	0.0898	A		11.4	0.06 - 0.12	0.014		Bq/sample
Strontium-90	2.39	2.25	A		6.2	1.58 - 2.92	0.20		Bq/sample
Uranium-234/233	0.275	0.273	A		0.7	0.19 - 0.35	0.039		Bq/sample
Uranium-238	0.294	0.283	A		3.9	0.20 - 0.37	0.041		Bq/sample
Zinc-65	5.12	4.33	A		18.2	3.03 - 5.63	0.39		Bq/sample

### Flags:

A = Result acceptable  
 W = Result acceptable with warning  
 N = Result not acceptable  
 L = Uncertainty potentially too low  
 H = Uncertainty potentially too high  
 Q = Participant should evaluate reported value  
 QL = Quantitation Limit  
 RW = Report Warning  
 NR = Not Reported

Bias <= 20%  
 20% < Bias <= 30%  
 Bias > 30%

### Flag Text

1 - False Positive  
 2 - False Negative  
 4 - Sensitivity Evaluation  
 5 - Total Metal  
 6 - Not Evaluated  
 7 - DL > CLP Limit  
 9 - Check QL  
 10 - Check Isomer  
 11 - False Positive Test, Value Not Reported  
 14 - Solubility Issue  
 15 - Refractory  
 16 - Reported zero uncertainty  
 17 - NOT DETECTED, reported a statistically zero result.  
 18 - Sensitivity evaluation, value not reported.

# Mixed Analyte Performance Evaluation Program

## Laboratory Results - Radiological Air Filter

WEST04

PACE ANALYTICAL SERVICES WALTZ MILL SITE  
P.O. BOX 158  
MADISON PA 15663-0158

Sample ID: MAPEP-05-RdF14

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Americium-241	0.003	0.158	N		-98.1	0.11 - 0.21	0.001	H	Bq/sample
Cesium-134	1.97	3.85	N		-48.8	2.69 - 5.01	0.110		Bq/sample
Cesium-137	2.04	3.23	N		-36.8	2.26 - 4.20	0.220		Bq/sample
Cobalt-57	4.93	6.20	W		-20.5	4.34 - 8.06	0.190		Bq/sample
Cobalt-60	2.42	2.85	A		-15.1	1.99 - 3.70	0.350		Bq/sample
Manganese-54	3.72	4.37	A		-14.9	3.06 - 5.68	0.310		Bq/sample
Plutonium-238	0.099	0.0969	A		2.2	0.07 - 0.13	0.039	H	Bq/sample
Plutonium-239/240	0.077	0.0898	A		-14.3	0.06 - 0.12	0.031	H	Bq/sample
Strontium-90	1.72	2.25	W		-23.6	1.58 - 2.92	0.111		Bq/sample
Uranium-234/233	0.297	0.273	A		8.8	0.19 - 0.35	0.062	H	Bq/sample
Uranium-238	0.265	0.283	A		-6.4	0.20 - 0.37	0.058	H	Bq/sample
Zinc-65	4.08	4.33	A		-5.8	3.03 - 5.63	0.250		Bq/sample

### Flags:

A = Result acceptable  
W = Result acceptable with warning  
N = Result not acceptable  
L = Uncertainty potentially too low  
H = Uncertainty potentially too high  
Q = Participant should evaluate reported value  
QL = Quantitation Limit  
RW = Report Warning  
NR = Not Reported

Bias <= 20%  
20% < Bias <= 30%  
Bias > 30%

### Flag Text

1 - False Positive  
2 - False Negative  
4 - Sensitivity Evaluation  
5 - Total Metal  
6 - Not Evaluated  
7 - DL > CLP Limit  
9 - Check QL  
10 - Check Isomer  
11 - False Positive Test, Value Not Reported  
14 - Solubility Issue  
15 - Refractory  
16 - Reported zero uncertainty  
17 - NOT DETECTED, reported a statistically zero result.  
18 - Sensitivity evaluation, value not reported.

# Mixed Analyte Performance Evaluation Program

## Laboratory Results - Radiological Air Filter

WIPHO1

WI, DPH, Radiation Protection Section

Sample ID: MAPEP-05-RdF14

PO Box 2659

Madison

WI

53701-2659

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Americium-241	NR	0.158				0.11 - 0.21			
Cesium-134	2.67	3.85	N		-30.6	2.69 - 5.01	0.07	L	Bq/sample
Cesium-137	2.70	3.23	A		-16.4	2.26 - 4.20	0.11		Bq/sample
Cobalt-57	5.28	6.20	A		-14.8	4.34 - 8.06	0.13	L	Bq/sample
Cobalt-60	2.54	2.85	A		-10.9	1.99 - 3.70	0.08		Bq/sample
Manganese-54	3.76	4.37	A		-14.0	3.06 - 5.68	0.14		Bq/sample
Plutonium-238	NR	0.0969				0.07 - 0.13			
Plutonium-239/240	NR	0.0898				0.06 - 0.12			
Strontium-90	NR	2.25				1.58 - 2.92			
Uranium-234/233	NR	0.273				0.19 - 0.35			
Uranium-238	NR	0.283				0.20 - 0.37			
Zinc-65	4.27	4.33	A		-1.4	3.03 - 5.63	0.22		Bq/sample

### Flags:

A = Result acceptable  
 W = Result acceptable with warning  
 N = Result not acceptable  
 L = Uncertainty potentially too low  
 H = Uncertainty potentially too high  
 Q = Participant should evaluate reported value  
 QL = Quantitation Limit  
 RW = Report Warning  
 NR = Not Reported

Bias <= 20%  
 20% < Bias <= 30%  
 Bias > 30%

### Flag Text

1 - False Positive  
 2 - False Negative  
 4 - Sensitivity Evaluation  
 5 - Total Metal  
 6 - Not Evaluated  
 7 - DL > CLP Limit  
 9 - Check QL  
 10 - Check Isomer  
 11 - False Positive Test, Value Not Reported  
 14 - Solubility Issue  
 15 - Refractory  
 16 - Reported zero uncertainty  
 17 - NOT DETECTED, reported a statistically zero result.  
 18 - Sensitivity evaluation, value not reported.

# Mixed Analyte Performance Evaluation Program

## Laboratory Results - Radiological Air Filter

WIPP01

WIPP Laboratories  
1400 University Drive  
Carlsbad

Sample ID: MAPEP-05-RdF14

NM 88220

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Americium-241	1.56e-1	0.158	A		-1.3	0.11 - 0.21	1.35e-2		Bq/sample
Cesium-134	3.60e0	3.85	A		-6.5	2.69 - 5.01	6.18e-1		Bq/sample
Cesium-137	3.02e0	3.23	A		-6.5	2.26 - 4.20	5.10e-1		Bq/sample
Cobalt-57	9.14e0	6.20	N		47.4	4.34 - 8.06	1.57e0		Bq/sample
Cobalt-60	3.02e0	2.85	A		6.0	1.99 - 3.70	4.96e-1		Bq/sample
Manganese-54	4.14e0	4.37	A		-5.3	3.06 - 5.68	6.43e-1		Bq/sample
Plutonium-238	9.08e-2	0.0969	A		-6.3	0.07 - 0.13	1.04e-2		Bq/sample
Plutonium-239/240	9.03e-2	0.0898	A		0.6	0.06 - 0.12	1.03e-2		Bq/sample
Strontium-90	2.17e0	2.25	A		-3.6	1.58 - 2.92	1.73e-1		Bq/sample
Uranium-234/233	3.00e-1	0.273	A		9.9	0.19 - 0.35	2.51e-2		Bq/sample
Uranium-238	2.83e-1	0.283	A		0.0	0.20 - 0.37	2.41e-2		Bq/sample
Zinc-65	4.43e0	4.33	A		2.3	3.03 - 5.63	7.41e-1		Bq/sample

### Flags:

A = Result acceptable  
W = Result acceptable with warning  
N = Result not acceptable  
L = Uncertainty potentially too low  
H = Uncertainty potentially too high  
Q = Participant should evaluate reported value  
QL = Quantitation Limit  
RW = Report Warning  
NR = Not Reported

Bias <= 20%  
20% < Bias <= 30%  
Bias > 30%

### Flag Text

1 - False Positive  
2 - False Negative  
4 - Sensitivity Evaluation  
5 - Total Metal  
6 - Not Evaluated  
7 - DL > CLP Limit  
9 - Check QL  
10 - Check Isomer  
11 - False Positive Test, Value Not Reported  
14 - Solubility Issue  
15 - Refractory  
16 - Reported zero uncertainty  
17 - NOT DETECTED, reported a statistically zero result.  
18 - Sensitivity evaluation, value not reported.

# Mixed Analyte Performance Evaluation Program

## Laboratory Results - Radiological Air Filter

WSHL01

Wisconsin State Laboratory of Hygiene

Sample ID: MAPEP-05-RdF14

2601 Agriculture Drive

Madison

WI

53718

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Americium-241	NR	0.158				0.11 - 0.21			
Cesium-134	3.5	3.85	A		-9.1	2.69 - 5.01	0.1	L	Bq/sample
Cesium-137	3.0	3.23	A		-7.1	2.26 - 4.20	0.1		Bq/sample
Cobalt-57	5.7	6.20	A		-8.1	4.34 - 8.06	0.2		Bq/sample
Cobalt-60	2.8	2.85	A		-1.8	1.99 - 3.70	0.1		Bq/sample
Manganese-54	4.3	4.37	A		-1.6	3.06 - 5.68	0.1	L	Bq/sample
Plutonium-238	NR	0.0969				0.07 - 0.13			
Plutonium-239/240	NR	0.0898				0.06 - 0.12			
Strontium-90	NR	2.25				1.58 - 2.92			
Uranium-234/233	NR	0.273				0.19 - 0.35			
Uranium-238	NR	0.283				0.20 - 0.37			
Zinc-65	4.8	4.33	A		10.9	3.03 - 5.63	0.2		Bq/sample

### Flags:

A = Result acceptable  
W = Result acceptable with warning  
N = Result not acceptable  
L = Uncertainty potentially too low  
H = Uncertainty potentially too high  
Q = Participant should evaluate reported value  
QL = Quantitation Limit  
RW = Report Warning  
NR = Not Reported

Bias <= 20%  
20% < Bias <= 30%  
Bias > 30%

### Flag Text

1 - False Positive  
2 - False Negative  
4 - Sensitivity Evaluation  
5 - Total Metal  
6 - Not Evaluated  
7 - DL > CLP Limit  
9 - Check QL  
10 - Check Isomer  
11 - False Positive Test, Value Not Reported  
14 - Solubility Issue  
15 - Refractory  
16 - Reported zero uncertainty  
17 - NOT DETECTED, reported a statistically zero result.  
18 - Sensitivity evaluation, value not reported.

# Mixed Analyte Performance Evaluation Program

## Laboratory Results - Radiological Air Filter

WVDP01

WVDP Environmental Laboratory

Sample ID: MAPEP-05-RdF14

10282 Rock Springs Road

West Valley NY 14171

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Americium-241	NR	0.158				0.11 - 0.21			
Cesium-134	3.55	3.85	A		-7.8	2.69 - 5.01	0.120		Bq/sample
Cesium-137	3.03	3.23	A		-6.2	2.26 - 4.20	0.112		Bq/sample
Cobalt-57	5.62	6.20	A		-9.4	4.34 - 8.06	0.0689	L	Bq/sample
Cobalt-60	2.66	2.85	A		-6.7	1.99 - 3.70	0.124		Bq/sample
Manganese-54	4.26	4.37	A		-2.5	3.06 - 5.68	0.142		Bq/sample
Plutonium-238	NR	0.0969				0.07 - 0.13			
Plutonium-239/240	NR	0.0898				0.06 - 0.12			
Strontium-90	NR	2.25				1.58 - 2.92			
Uranium-234/233	NR	0.273				0.19 - 0.35			
Uranium-238	NR	0.283				0.20 - 0.37			
Zinc-65	4.08	4.33	A		-5.8	3.03 - 5.63	0.279		Bq/sample

### Flags:

A = Result acceptable  
 W = Result acceptable with warning  
 N = Result not acceptable  
 L = Uncertainty potentially too low  
 H = Uncertainty potentially too high  
 Q = Participant should evaluate reported value  
 QL = Quantitation Limit  
 RW = Report Warning  
 NR = Not Reported

Bias <= 20%  
 20% < Bias <= 30%  
 Bias > 30%

### Flag Text

1 - False Positive  
 2 - False Negative  
 4 - Sensitivity Evaluation  
 5 - Total Metal  
 6 - Not Evaluated  
 7 - DL > CLP Limit  
 9 - Check QL  
 10 - Check Isomer  
 11 - False Positive Test, Value Not Reported  
 14 - Solubility Issue  
 15 - Refractory  
 16 - Reported zero uncertainty  
 17 - NOT DETECTED, reported a statistically zero result.  
 18 - Sensitivity evaluation, value not reported.

# Mixed Analyte Performance Evaluation Program

## Laboratory Results - Radiological Air Filter

WVPL01

WVDP Radiation Protection Lab

Sample ID: MAPEP-05-RdF14

10282 Rock Springs Rd

West Valley

NY

14171

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Americium-241	0.15	0.158	A		-5.1	0.11 - 0.21	.025		Bq/sample
Cesium-134	3.0	3.85	W		-22.1	2.69 - 5.01	0.1		Bq/sample
Cesium-137	3.0	3.23	A		-7.1	2.26 - 4.20	0.1		Bq/sample
Cobalt-57	6.0	6.20	A		-3.2	4.34 - 8.06	0.2		Bq/sample
Cobalt-60	2.7	2.85	A		-5.3	1.99 - 3.70	0.1		Bq/sample
Manganese-54	4.4	4.37	A		0.7	3.06 - 5.68	0.2		Bq/sample
Plutonium-238	NR	0.0969				0.07 - 0.13			
Plutonium-239/240	NR	0.0898				0.06 - 0.12			
Strontium-90	NR	2.25				1.58 - 2.92			
Uranium-234/233	NR	0.273				0.19 - 0.35			
Uranium-238	NR	0.283				0.20 - 0.37			
Zinc-65	5.1	4.33	A		17.8	3.03 - 5.63	0.2		Bq/sample

### Flags:

A = Result acceptable  
W = Result acceptable with warning  
N = Result not acceptable  
L = Uncertainty potentially too low  
H = Uncertainty potentially too high  
Q = Participant should evaluate reported value  
QL = Quantitation Limit  
RW = Report Warning  
NR = Not Reported

Bias <= 20%  
20% < Bias <= 30%  
Bias > 30%

### Flag Text

1 - False Positive  
2 - False Negative  
4 - Sensitivity Evaluation  
5 - Total Metal  
6 - Not Evaluated  
7 - DL > CLP Limit  
9 - Check QL  
10 - Check Isomer  
11 - False Positive Test, Value Not Reported  
14 - Solubility Issue  
15 - Refractory  
16 - Reported zero uncertainty  
17 - NOT DETECTED, reported a statistically zero result.  
18 - Sensitivity evaluation, value not reported.

# Mixed Analyte Performance Evaluation Program

## Laboratory Results - Radiological Air Filter

YAEC01

Framatome ANP Environmental Laboratory  
29 Research Drive  
Westboro MA 01581

Sample ID: MAPEP-05-RdF14

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Americium-241	0.1359	0.158	A		-14.0	0.11 - 0.21	.0055		Bq/sample
Cesium-134	3.828	3.85	A		-0.6	2.69 - 5.01	0.20		Bq/sample
Cesium-137	3.396	3.23	A		5.1	2.26 - 4.20	0.18		Bq/sample
Cobalt-57	6.506	6.20	A		4.9	4.34 - 8.06	0.33		Bq/sample
Cobalt-60	2.924	2.85	A		2.6	1.99 - 3.70	0.15		Bq/sample
Manganese-54	4.55	4.37	A		4.1	3.06 - 5.68	0.23		Bq/sample
Plutonium-238	0.1059	0.0969	A		9.3	0.07 - 0.13	0.0031	L	Bq/sample
Plutonium-239/240	0.096	0.0898	A		6.9	0.06 - 0.12	0.003		Bq/sample
Strontium-90	2.037	2.25	A		-9.5	1.58 - 2.92	0.14		Bq/sample
Uranium-234/233	NR	0.273				0.19 - 0.35			
Uranium-238	NR	0.283				0.20 - 0.37			
Zinc-65	4.81	4.33	A		11.1	3.03 - 5.63	0.27		Bq/sample

### Flags:

A = Result acceptable  
W = Result acceptable with warning  
N = Result not acceptable  
L = Uncertainty potentially too low  
H = Uncertainty potentially too high  
Q = Participant should evaluate reported value  
QL = Quantitation Limit  
RW = Report Warning  
NR = Not Reported

Bias <= 20%  
20% < Bias <= 30%  
Bias > 30%

### Flag Text

1 - False Positive  
2 - False Negative  
4 - Sensitivity Evaluation  
5 - Total Metal  
6 - Not Evaluated  
7 - DL > CLP Limit  
9 - Check QL  
10 - Check Isomer  
11 - False Positive Test, Value Not Reported  
14 - Solubility Issue  
15 - Refractory  
16 - Reported zero uncertainty  
17 - NOT DETECTED, reported a statistically zero result.  
18 - Sensitivity evaluation, value not reported.

# Mixed Analyte Performance Evaluation Program

## Laboratory Results - Radiological Air Filter

YPGA01

US Army Yuma Proving Ground / Material Analysis Lab

Sample ID: MAPEP-05-RdF14

301 C. Street

Yuma

AZ

85365

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Uranium-Total	35.0	23.0	N		52.2		0.7		(ug/sample)
Americium-241	NR	0.158				0.11 - 0.21			
Cesium-134	NR	3.85				2.69 - 5.01			
Cesium-137	NR	3.23				2.26 - 4.20			
Cobalt-57	NR	6.20				4.34 - 8.06			
Cobalt-60	NR	2.85				1.99 - 3.70			
Manganese-54	NR	4.37				3.06 - 5.68			
Plutonium-238	NR	0.0969				0.07 - 0.13			
Plutonium-239/240	NR	0.0898				0.06 - 0.12			
Strontium-90	NR	2.25				1.58 - 2.92			
Uranium-234/233	NR	0.273				0.19 - 0.35			
Uranium-238	NR	0.283				0.20 - 0.37			
Zinc-65	NR	4.33				3.03 - 5.63			

### Flags:

A = Result acceptable

W = Result acceptable with warning

N = Result not acceptable

L = Uncertainty potentially too low

H = Uncertainty potentially too high

Q = Participant should evaluate reported value

QL = Quantitation Limit

RW = Report Warning

NR = Not Reported

Bias <= 20%

20% < Bias <= 30%

Bias > 30%

### Flag Text

1 - False Positive

2 - False Negative

4 - Sensitivity Evaluation

5 - Total Metal

6 - Not Evaluated

7 - DL > CLP Limit

9 - Check QL

10 - Check Isomer

11 - False Positive Test, Value Not Reported

14 - Solubility Issue

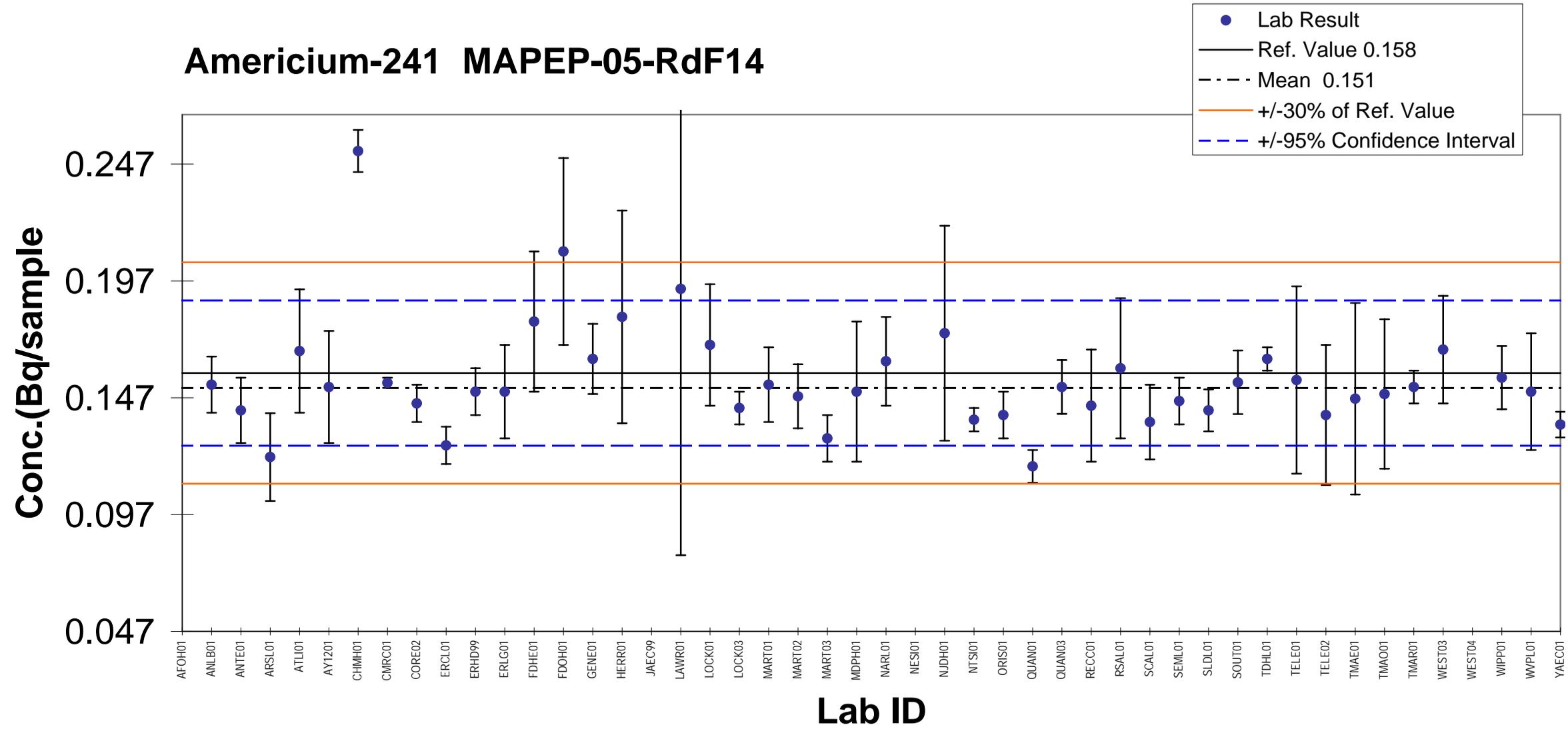
15 - Refractory

16 - Reported zero uncertainty

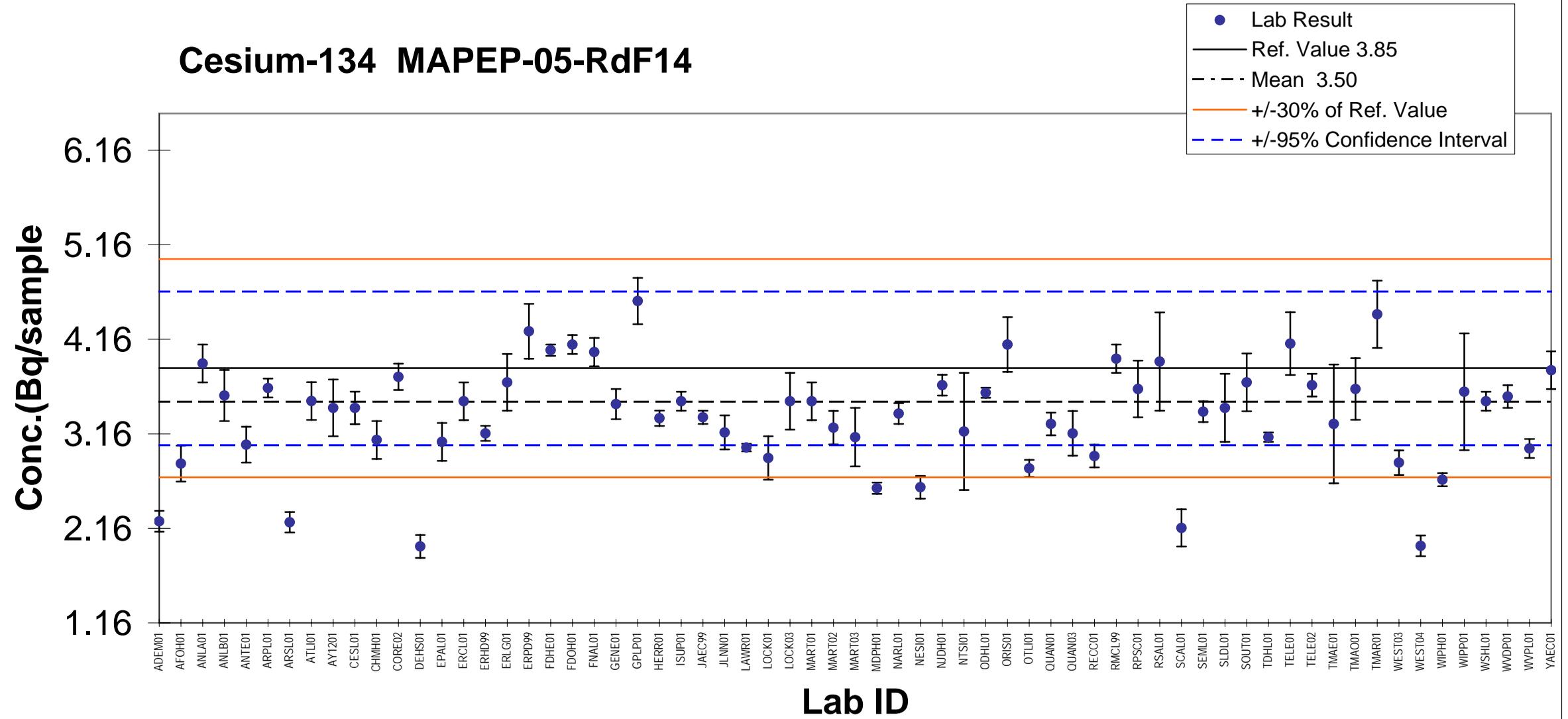
17 - NOT DETECTED, reported a statistically zero result.

18 - Sensitivity evaluation, value not reported.

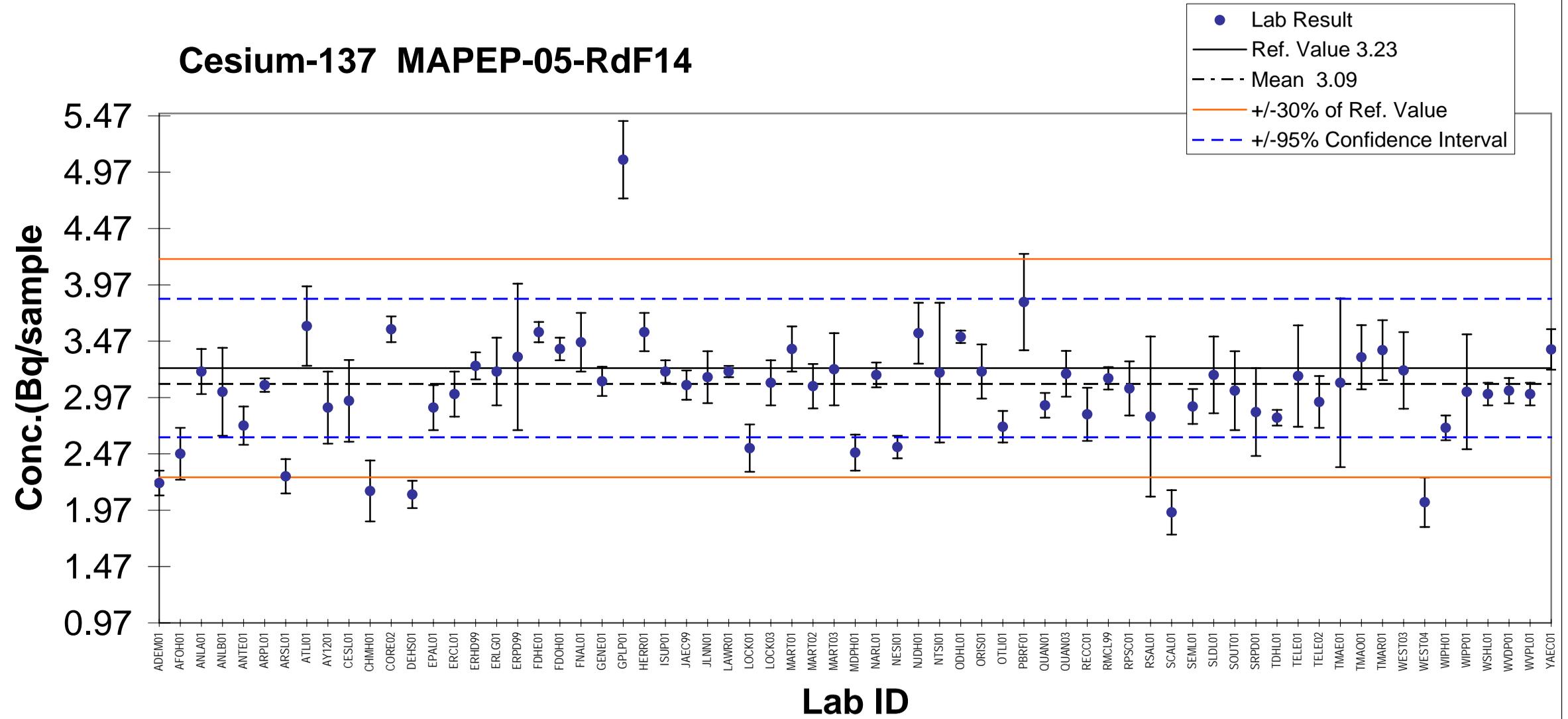
# Americium-241 MAPEP-05-RdF14



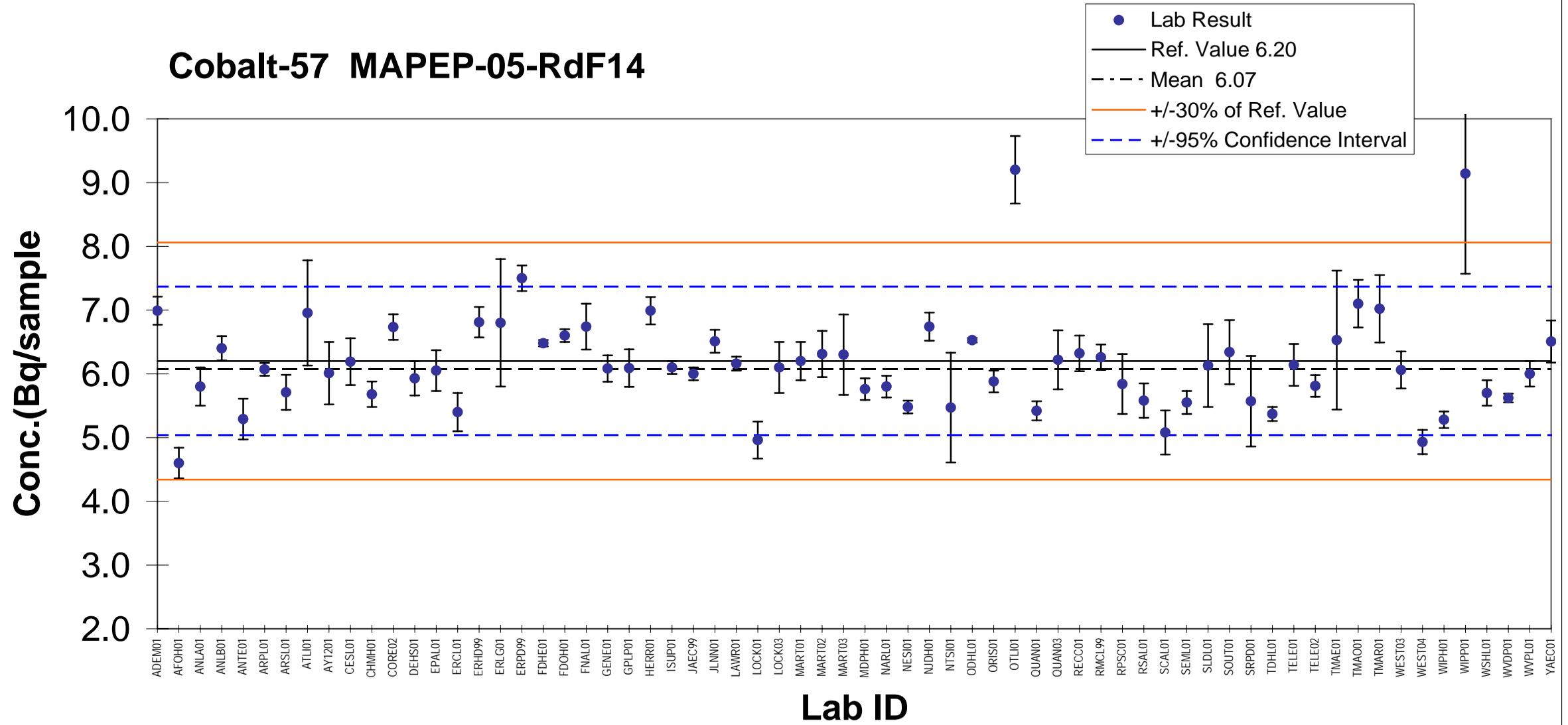
# Cesium-134 MAPEP-05-RdF14



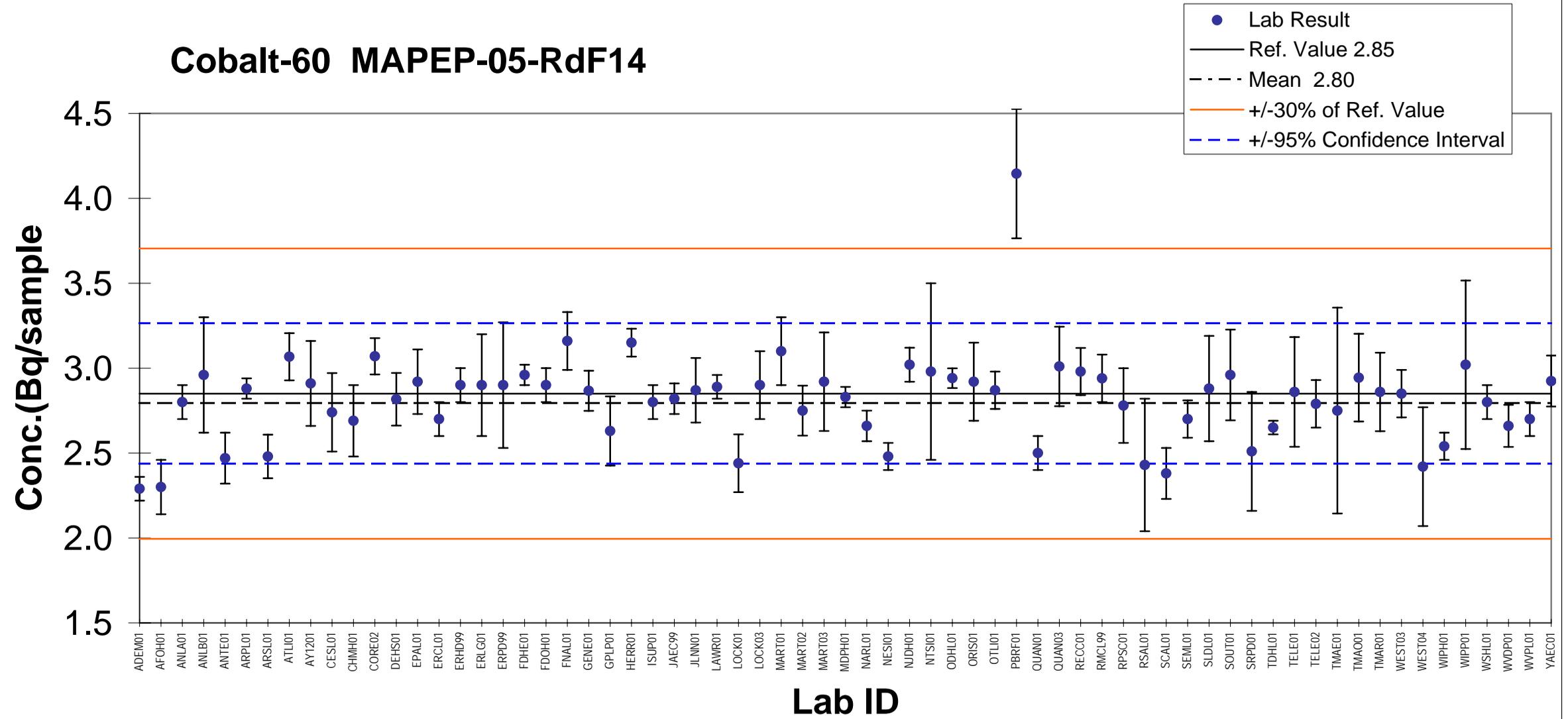
# Cesium-137 MAPEP-05-RdF14



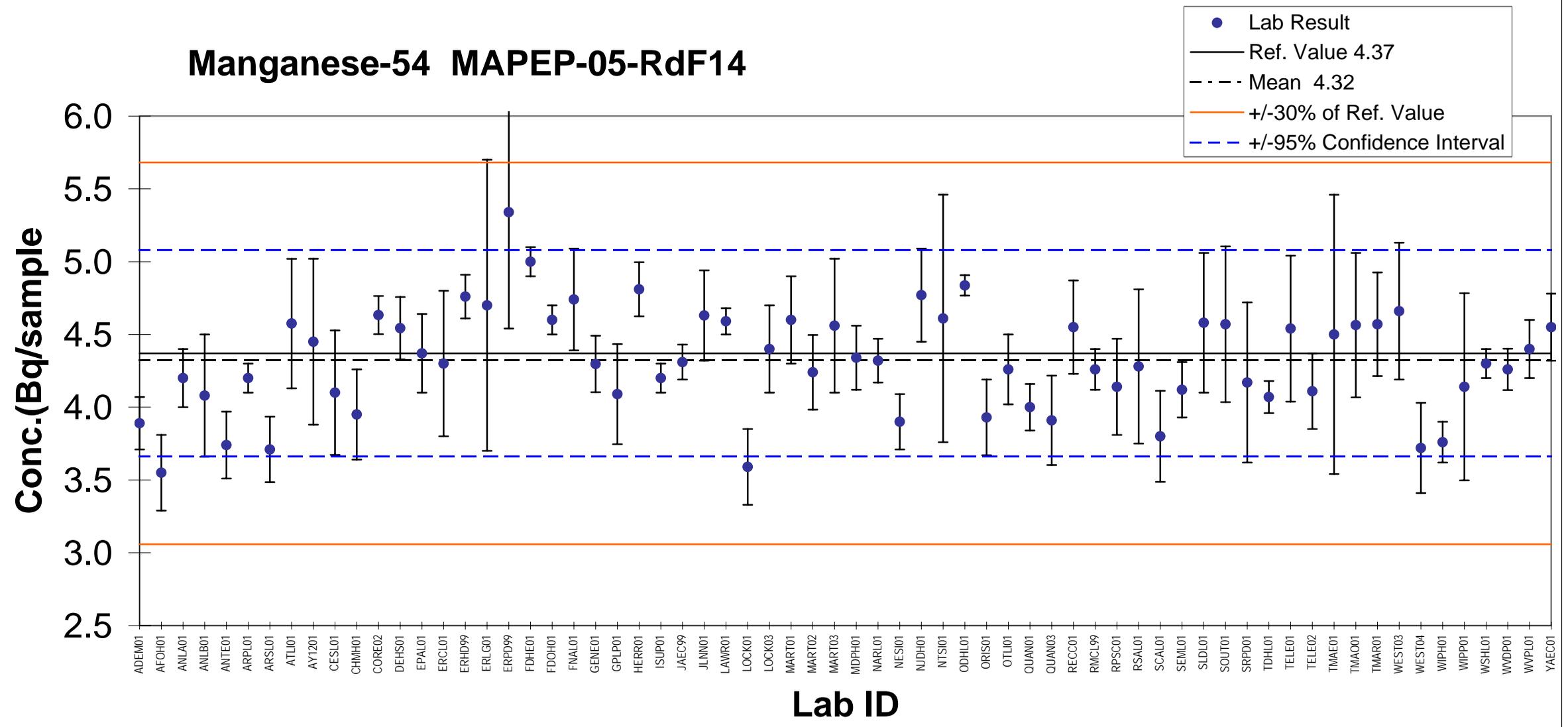
# Cobalt-57 MAPEP-05-RdF14



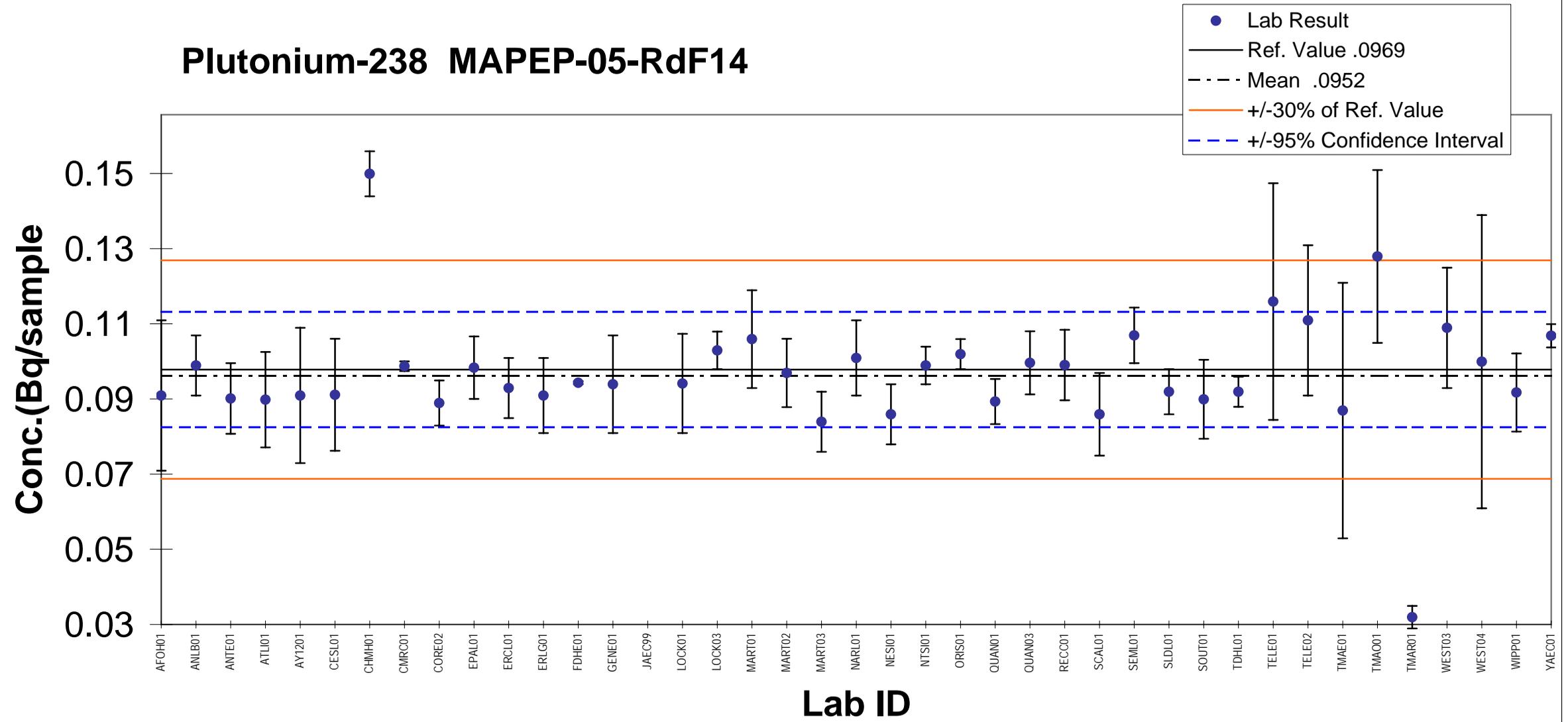
# Cobalt-60 MAPEP-05-RdF14



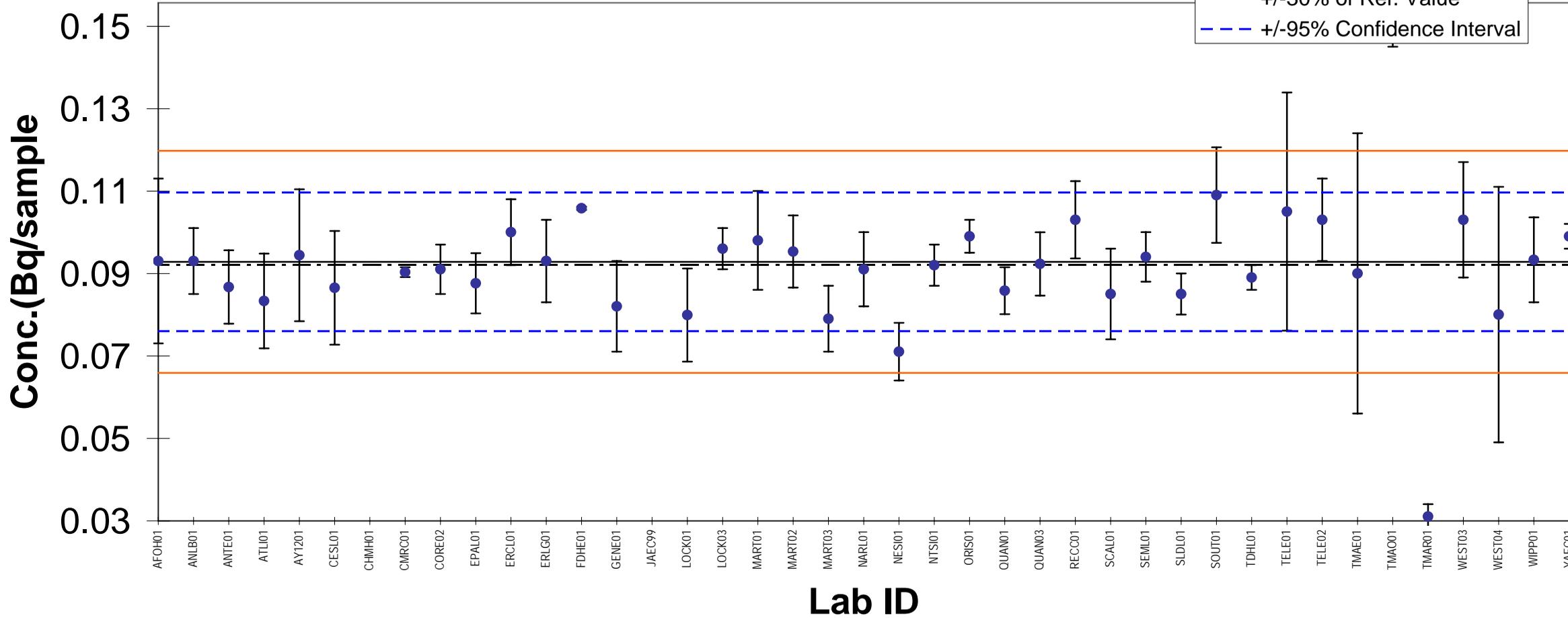
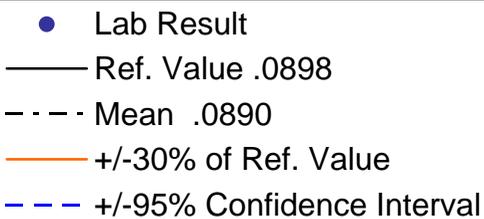
# Manganese-54 MAPEP-05-RdF14



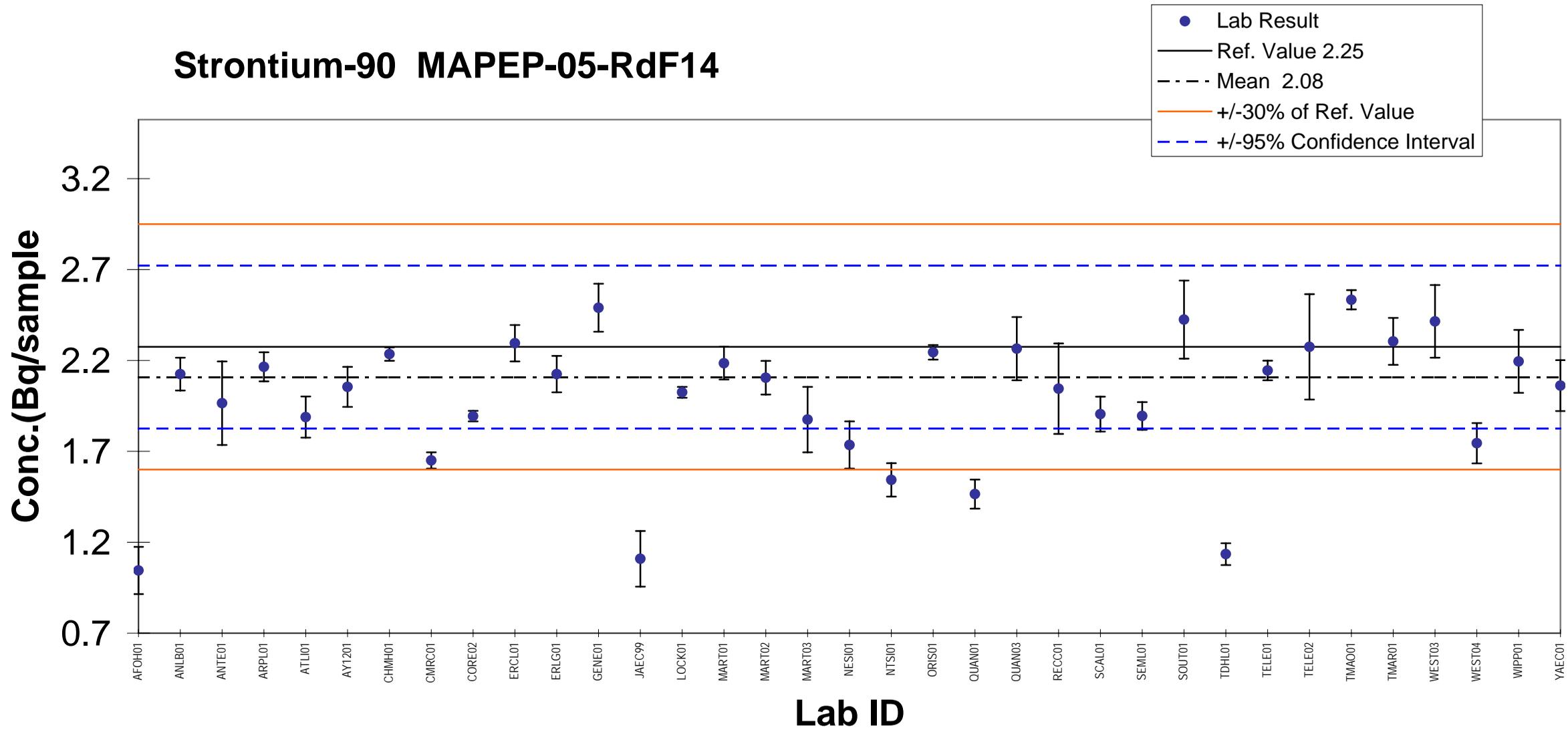
# Plutonium-238 MAPEP-05-RdF14



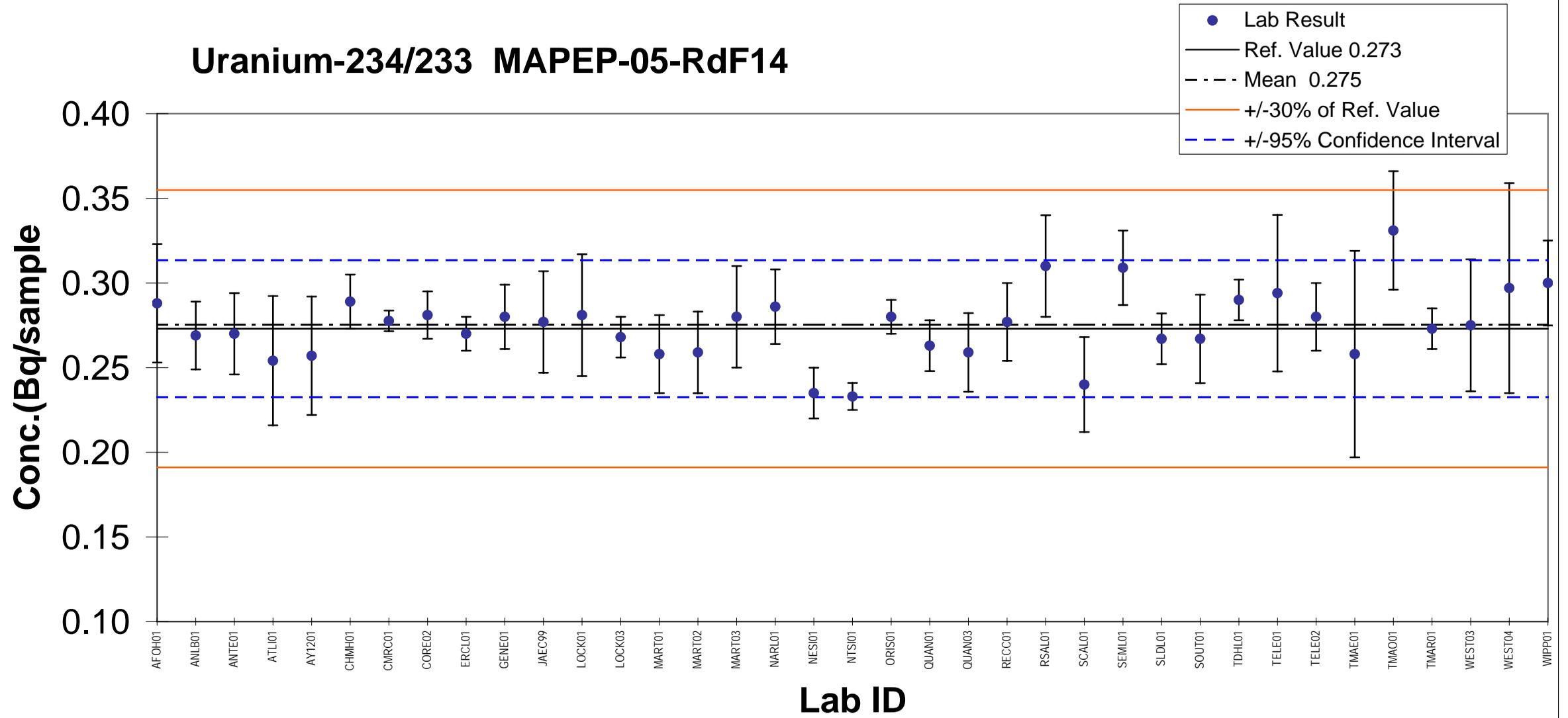
# Plutonium-239/240 MAPEP-05-RdF14



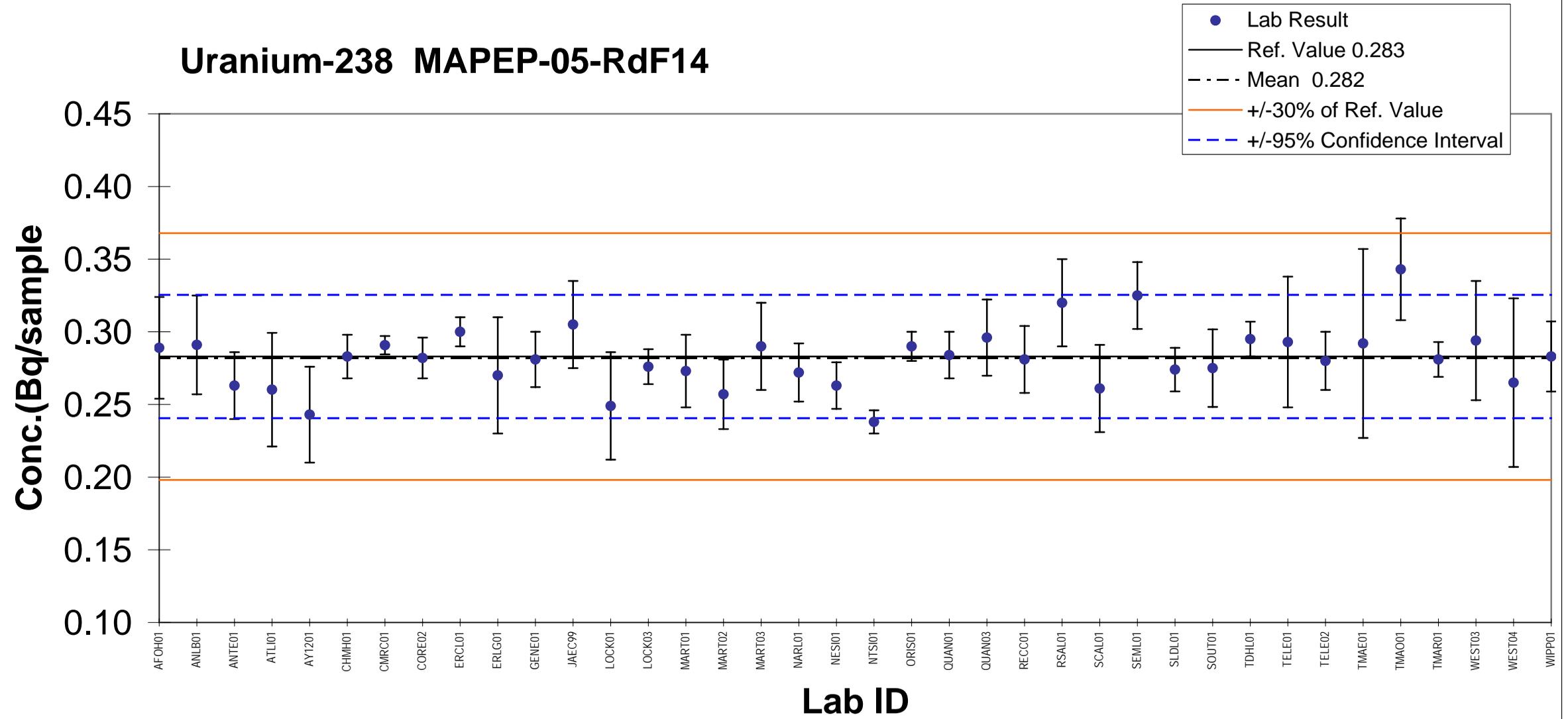
# Strontium-90 MAPEP-05-RdF14



# Uranium-234/233 MAPEP-05-RdF14



# Uranium-238 MAPEP-05-RdF14



# Zinc-65 MAPEP-05-RdF14

